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I. ANATOMY, PHYSIOLOGY AND PATHOLOGY.

Syphilitic Fungus of the Testicle.

Du Mauriac, in the *Annales de Derm. et de Syph.*, says that the common cause of fungus of the testicle is the gummy sarcocele, as Professor Gosselin believed, and as Rollet has furnished clinical proofs to substantiate this belief.

There are two varieties of syphilitic fungus of the testicle: the superficial fungus, which results from a subscrotal gumma, originating either in the subcutaneous cellular tissue, or in the superficial layer of the tunica albuginea; and the deep-seated fungus, which almost always comes from a gumma of the testicle (intra-albuginea) which has softened and is being evacuated.

Histologically the two varieties are distinguished by the absence of seminiferous tubules in the fungosities of the first, and their presence in those of the second.

The syphilitic fungus is benign; it must not be confounded with cancer, tuberculosis, or the fungus of certain severe orchi-epididymites complicated with abscess of the scrotum. This fungus has no bad prognosis as regards spermatogenesis. Its treatment does not differ from that of syphilitic sarcocele. The temptation to plunge a bistoury into the diseased tissue, or to excise or cauterize it, must be resisted.—*Journal of Cutaneous and Genito-Urinary Diseases*, September, 1887.

Tuberculosis of the Skin.

Professor Schwimmer (*Viertelj. f. Derm. und Syph.*, Heft. 1, 1887,) does not accept as fully proven that lupus is a local tuberculosis of the skin, and believes that the clinical pictures of the two diseases are quite distinct.

1. Cutaneous tuberculosis is rare; lupus is relatively frequent. Tuberculosis rapidly breaks down and lupus nodules are wanting.

2. Tuberculosis is almost exclusively found in mucous membranes at first, and only subsequently extends to the skin. In lupus, the converse is the rule, it being rarely found upon a mucous membrane alone.

3. Lupus of the skin rarely leads to general tuberculosis, while tubercle is the index of a constitutional disease.

4. In cutaneous tuberculosis bacilli are much more numerous than in lupus: as numerous, in fact, as in the sputum of phthisis.

The lepra and syphilis bacilli closely resemble that of tubercle; and the author doubts that the lupus and tubercle bacilli are identical.

Lupus has not been produced by inoculation from tuberculosis, although it is said that inoculation with lupus tissue has produced tuberculosis. If identical, they should be reciprocally transmissible, the one from the other. In treatment, destructive agents which prove useful in lupus, do not act so favorably on tu-

berculosis, which is more benefited by measures which diminish irritation. The pain of the latter disease he has found to be best relieved by papayotin in 5 per cent. solution, which has no effect on lupus.—*Journal of Cutaneous and Genito-Urinary Diseases*, September, 1887.

Transmission of Lepra to Rabbits.

Dr. F. WESENER (*Münchener med. Wochensch.*, Nos. 16, 17, 18, 1887) came into the possession of a few pieces of leprous skin from the person of a twelve-and-a-half-year-old girl, a patient in the Elizabeth Hospital of Berlin. The dry pieces were inoculated into the abdominal cavity of one rabbit and into the orbital cavity of another. Both animals died after seven months. The one inoculated in the abdominal cavity gave a negative result, and the one inoculated in the eye showed very considerable changes in the form of cloudiness, spots and infiltrations in the iris and swellings of the cornea. Histologically the cloudy spots showed a grouping of round cells, and in the cells a few bacilli were to be seen, besides pigment flakes which, according to the author, indicated that the bacilli, acting as foreign bodies, caused the collection of the round cells to form, which collections the bacilli caused eventually to break down.

A second series of experiments was made by injecting the pieces of skin rubbed up in a solution of salt. Six animals were injected in the peritoneal cavity, the eye cavity, the jugular vein and the cavity of the cranium and subcutaneous connective tissue. In four cases the result was negative, while in the remaining two, nodes and nodules were found in the lungs, liver, spleen and kidneys. The nodules, which were circumscribed, of a yellow color, and consisted of epithelial cells, became affected with cheesy degeneration. The author regards these processes as tubercular, and concludes that inoculation of lepra in animals has not yet been successful, and that those cases which appear to be so are in reality cases of tuberculosis.—*Journal of Cutaneous and Genito-Urinary Diseases*, September, 1887.

Origin of the Phrenic Nerve, with Notes on Nerve-variations in the Upper Extremity.

At a meeting of the Academy of Medicine of Ireland, held May 5, 1887, Dr. BROOKS read a paper on the above subject.

This paper was illustrated by colored diagrams—the third, fourth and fifth nerves being each indicated by a distinct color. In the eighteen cases examined, the author has performed the entire dissection himself, as partially dissected subjects could not be relied upon for statistical evidence. All authors are agreed that the main root of the phrenic nerve is from the fourth cervical nerve, but some anatomists (Henle, Krause) consider the commonest accessory root to be derived from the third. A root from the third was present in only three out of these eighteen cases, while a root from the fourth (either directly or through the nerve to the subclavius) was present in twelve cases. Out of the remaining six cases the nerve to the subclavius was not noted in four, leaving only two cases in which the nerve root from the fifth was proved to be absent. In the three cases in which the root from the third was present, all occurred on the right side. Nine right and nine left phrenic nerves were observed. In three cases the nerve

to the subclavius was observed to arise from the third nerve instead of the fourth. In forty-five cases the root to the nerve of Bell from the seventh cervical nerve (which is regarded as abnormal by some anatomists) was present forty-one times. In one case the root from the eighth was also present.

The author has also observed that the nerve to the rhomboids usually passes through the levator anguli scapulæ in the form of several twigs, which unite lower down, constituting a sort of plexus. He also recorded a case in which the flexor sublimis digitorum received a twig from the ulnar nerve.—*Glasgow Med. Journal*, October, 1887.

Grinder's Consumption.

FRANCIS J. CANEDY, M. D., Shelburne Falls, Mass., in a paper read at the May meeting of the Franklin District Medical Society, says:

There have been employed in the grinding-room of the Lamson & Goodnow Cutlery Company, at Shelburne Falls, from thirty to fifty men and boys, for the past twenty-five years, giving an average of about forty. During the past ten years twenty-three of these grinders have died with chronic disease of the air passages—seven Irish, seven English, six Americans and three Germans—of whom five were between sixty and seventy years of age, eight between fifty and sixty, three between forty and fifty, five between thirty and forty, and two between twenty and thirty; and there are now sick confined to the house, three, one English, between sixty and seventy, and two Germans, one fifty-five years old, and another about thirty-five. There are still grinding, five in whom the disease is known to have made considerable progress.

This amount of fatal disease of respiratory organs in such a limited number of men, the majority of them considerably past the age at which consumption is most common, points positively to their occupation as a predisposing, if not an exciting cause, of no small importance, and Dr. Canedy's experience among these cases for the past ten or fifteen years, in the sick room and by the post-mortem table, has convinced him that the name of "grinder's consumption," given the disease by the laity, is a proper one.

That we all inhale no inconsiderable amount of dust in respiration is well known, and that certain occupations, as mining, wood and metal polishing, etc., cause the workers to inhale an atmosphere so loaded with dust of an irritating character as to produce specific lesions of the bronchial tubes and lungs has become so well established that all the newer books upon diseases of the respiratory organs, treat of this condition under the somewhat hard name of *pneumonokoniosis*, a classification of which is based upon the nature of the dust inhaled as *anthracosis* in coal miners, *siderosis* in iron and metal polishers, *tobacosis* from tobacco, or from the avocation of the sufferers as grinder's consumption, Potter's consumption, mason's and miller's lung. Of all these forms, none seems more certain or fatal in its effects, than the grinder's—Peabody, in some investigations made at Sheffield, England, making the average period they are able to continue their work, thirteen years.

The morbid anatomy of grinder's consumption, as the author has studied it in three post-mortem examinations, he has found as follows: The bronchial lesions are those of chronic bronchitis, with thickening of the bronchial mucous membrane, associated with ulceration and bronchial dilatation, forming bronchiectatic cavities.

These cavities, which are a marked feature in some cases, are said to be caused by a combined softening of the bronchial tissues, with traction from without by the newly-formed fibrous tissue.

Fibroid Phthisis.—The bronchial glands are enlarged, some of them to the size of small walnuts, gray and gritty on section. Gray nodules of cretaceous matter, from the size of a pin's head to that of a pea, are found disseminated throughout the lungs. But the most distinctive lesions are patches of indurated lung tissue, the predominant form of pulmonary change being of the fibroid type; and hardened districts of advanced cirrhosis occur, measuring two inches and upwards in length, breadth and thickness. On section they are gray, tough, and leathery, and covered in by a thickened and adherent pleura. In all of his cases Dr. Canedy found quite large and irregular-shaped cavities in the base and posterior portions of one or both lungs, into which, and in some quite through the diameter of which, passed bands of this same fibrous tissue. In one case this process of cirrhosis and breaking down of lung tissue, had so interfered with the circulation as to produce gangrene, and in several cases, in which no post-mortem was made, the atmosphere of the sick room was intolerable for days from this same gangrene of the lung. This fibroid induration of lung tissue is quite extensive, is found in both lungs, involving one-half or more of their entire substance, in some cases, and shades gradually into the healthy tissue.

The contraction of this new growth not only destroys the elasticity of the lungs, but actually constricts the areas of intervening healthy lung. The normal capillary circulation is, of course, seriously interfered with or destroyed, in those cirrhotic patches, and in proportion to their extent the entire pulmonary circulation becomes obstructed, and the right ventricle and the venous system distended; this condition of course, being greatly aggravated by exertion, thus accounting for the intermittent pulse, dyspnœa, dilated veins, and cold extremities, which are so prominent in some very chronic cases. The course of these morbid processes is insidious and slowly progressive, and as in other forms of lung disease, is more or less modified by inherited tendencies, and such influences and habits as diminish vitality, or affect personal hygiene, especially the use or abuse of alcohol, three-fourths of the author's cases having been hard drinkers.

Traumatic Tetanus.

In a preliminary report of experimental researches concerning the infectious nature of traumatic tetanus, read before the Pathological Section of the Ninth International Medical Congress, Dr. EDWARD O. SHAKESPEARE, of Philadelphia, reported in detail a long series of experiments, which are still in progress, and announced the results already obtained. Upwards of fifty inoculations have already been made. Two methods of inoculation have been employed: intra-cranial inoculation, after the method of Pasteur in the case of rabies, and subcutaneous or intra-muscular injections by means of hypodermic syringes. The inoculations were always made with thorough antiseptic precautions, and with sterilized instruments. In none of the experiments was there any sign of accidental infection, such as suppuration, etc. The material used for inoculation was, in general, obtained from the medulla or the spinal cord, and cultures in neutral or slightly alkaline flesh-glycerine-agar, as recommended by

Roux for the culture of tubercle bacilli. The tetanus material was taken, under aseptic precautions, from a horse and a mule which died of traumatic tetanus in the veterinary department of the University of Pennsylvania: the brain, medulla and cord being removed one and three hours, respectively, *post-mortem*, and immediately kept on ice until used. The inoculation material was, in general, prepared in the following manner: A small piece of the medulla or cord was thoroughly rubbed up in sterilized, distilled water; after the solid particles were allowed for a few minutes to subside to the bottom of the vessel, the opalescent emulsion thus obtained was drawn off by means of sterilized pipettes, and placed in small, sterilized vials until used, never having been thus kept more than three hours before inoculation. Eight control experiments were made.

The author concludes his paper as follows:

Résumé of Results—First Series. Eight rabbits were inoculated between August 1st and 18th, inclusive, sub dura cerebri, with material taken from a horse dead of tetanus. The rabbit inoculated directly from this horse showed the first symptoms of tetanus within fifteen hours, and died of well-marked tetanus within forty-eight hours after inoculation. Both the period of incubation and that of death became markedly shortened in continuing the inoculations from rabbit to rabbit.

Second Series. Four rabbits were inoculated, subdura cerebri, from the same medulla of a horse. The rabbit inoculated directly from the horse showed the first symptoms of tetanus within twenty hours, and died within forty-eight hours after inoculation. Continuing the inoculation from rabbit to rabbit, the period of incubation and of death became markedly shortened.

Third Series. Four rabbits were inoculated, sub dura cerebri, from the same medulla of a horse, after it had been kept on ice a day longer. The rabbit inoculated directly from the horse showed the first symptoms of tetanus within twenty-four hours, and died within forty-eight hours after the inoculation. Continuing the inoculations from rabbit to rabbit, the period of incubation and of death became markedly shortened.

Fourth Series. Three rabbits were inoculated, sub dura cerebri, from the medulla of a mule dead of tetanus, with the same results as in the previous series.

Fifth Series. Seven rabbits were inoculated under the skin and into the muscular tissue of the back, from the medulla of the horse above mentioned. One died within eighteen hours, and another died within ten days, but neither of them showed any sign of tetanus. A rabbit inoculated, sub dura crebri, from the medulla of the latter, on August 15th, is still living and well on September 4th.

Sixth Series. A rabbit, which had been inoculated under the skin directly from the horse on August 1st, was, eight days afterward, inoculated sub dura cerebri from the medulla of the last rabbit of the third series. It became sick and died promptly of tetanus, within the shortened period. A rabbit inoculated sub dura cerebri from the medulla of the one last mentioned, showed signs of tetanus within twenty hours, but did not die until five days after inoculation.

Seventh Series. Six rabbits were inoculated, sub dura cerebri, from emulsions of spinal cords of rabbits which had died of tetanus within the short period above mentioned. These cords had been treated in a manner similar to that employed by Pasteur for the attenuation of the virus of rabies, during periods

varying from three to fifteen days. Five of the rabbits died of marked tetanus, the symptoms appearing, and death occurring, within periods longer than those of the corresponding rabbits from which the cord had been taken, and usually proportional to the length of time the cord had been drying. One of the six showed doubtful symptoms, but, nevertheless, very promptly died.

Eighth Series. A rabbit was inoculated, sub dura cerebri, from the medulla of a rabbit which had died after inoculation from the cord which had been fifteen days drying. It showed the first signs of tetanus in forty hours, and died of tetanus seven days after inoculation.

A rabbit was inoculated, sub dura cerebri, from the cord which had been drying fourteen days, and died of tetanus in twenty hours. A rabbit and a cow were inoculated sub dura cerebri from its medulla. The former quickly died of marked tetanus. The latter died without marked symptoms within two days, and from the autopsy it seemed probable that injury to the brain had been the cause of death (there had been great difficulty in performing the operation of inoculation). A young rabbit, inoculated sub dura cerebri from this cow's medulla, died within sixteen hours, but showed no signs of tetanus; and another rabbit, inoculated sub dura from the medulla of this rabbit, August 27th, was still living and quite well on September 4th, never having shown any signs of illness.

Ninth Series. Three rabbits were inoculated sub dura cerebri September 1st, from spinal cords which had been drying respectively twenty-three, twenty-seven, and twenty-eight days. (These cords were the same as those which had been drying longest, mentioned in the preceding seventh series). The rabbits inoculated from the twenty-third and twenty-eighth-day cords showed no signs of illness up to the time of the last observation, September 4th. The one inoculated with the twenty-seventh-day cord showed stiff jaws and difficulty in eating for the first time on the afternoon of September 4th.

Tenth Series. Three rabbits, which had been inoculated under the skin on the 19th of August, and had remained perfectly well, were inoculated sub dura cerebri, September 1st, from the same cords mentioned in the ninth series. The rabbit inoculated with the twenty-third-day cord was found dead the next day, but it showed no signs of tetanus either externally or at the autopsy. That of the twenty-eighth-day cord showed stiff jaws and refused to eat for the first time on the afternoon of September 4th. That of the twenty-seventh-day cord showed no signs of illness up to the last observation, September 4th.

Eleventh Series. Three rabbits were inoculated sub dura cerebri, August 31st, from the cultures started from the horse's brain August 1st, and renewed once, namely, on August 20th. One of them has remained quite well up to the last observation, September 4th. One remained quite well until September 2d, afternoon, when it showed intermittent trismus and indisposition to eat. This condition continued up to the date of last observation, September 4th. One showed slight signs of tetanus for the first time on September 3d, and had them also up to date of last observation, September 4th.

Twelfth Series. A trial attempt was kindly made for me by Dr. L. Wolff, Demonstrator of Medical Chemistry in the Jefferson Medical College to isolate a ptomaine from the brain medulla and cord of the mule and cow above mentioned. The Stass-Otto method was more or less closely followed.

The product obtained from the mule was injected under the skin of the back of two rabbits. They became very ill within twenty minutes, being slightly paralyzed and exceedingly restless, frequently getting down flat on the belly and up again, and jerking the hind legs up; but they showed no marked convulsive movement or trismus. They entirely recovered within six hours.

The product obtained from the cow produced but little and only very transient and indefinite effects.*

The conclusions drawn from the author's personal researches were:

(1) Traumatic tetanus of the horse and mule is, at least sometimes, if not always, an infectious disease, transmissible to other animals, and therefore possibly also to man; and during the progress of this disease a virus is elaborated and multiplied which is capable of producing the same infectious disease in some other animals when placed beneath the dura mater of the cerebrum.

(2) This virus is contained in the medulla and spinal marrow of the animal suffering the disease. It is, like the virus of rabies, capable of being strengthened in virulency by inoculation sub dura cerebri upon the rabbit, and, like the virus of rabies, is capable of attenuation by exposure for a sufficient time to the action of dry air at a temperature of summer heat; and again, like the rabic virus, its effects are far more intense when the virus is inserted beneath the dura-mater cerebri than when injected beneath the skin or between the muscles of the back.

The author reserves his conclusions concerning a prophylactic effect of inoculations of the attenuated virus, until the completion of experiments which are at present in progress.

The conclusions drawn from the author's experiments when correlated with those of Nicolaier, Carle and Ratone, Rossenbach, Ferrari, Flügge, *et al.* are:

Traumatic tetanus of the lower animals and of man, at least sometimes, possibly always, is a specific infectious disease, due to the action of a specific infectious virus which exists in the tissues at the seat of infection, in the blood and in the central cerebro-spinal nervous system.

In view of the experimental evidence which we possess at present and of many unassailable observations of many surgeons and veterinarians, there seems to be ample warrant for the admission that not infrequently tetanus in man is acquired directly and indirectly from some of the domestic animals which surround him, notably the horse.

Irregularities of the Septum Narium, without Deflection, as an Ætiological Factor in Nasal Catarrh.†

Dr. F. Whitehill Hinkel, of the University of Buffalo, writes as follows on this subject, in the *N. Y. Med. Journal*, October 1, 1887.

It is the purpose of this paper to invite your attention to outgrowths from the

* Several autopsies of the tetanus animals were made, and they invariably showed intense congestion of the lungs, trachea and kidneys. Sometimes there was congestion, oftentimes none at all, of the central cerebro-spinal nervous system. The mucous membrane of the stomach was apparently normal.

† Read by title before the Medical Society of the State of New York, at the eighty-first Annual Meeting.

septum narium without deflection of that structure *in toto* from its normal plane, and to consider the relation that such irregularities of structure sustain to the production of certain forms of nasal catarrh. While this paper was in course of preparation, and after its title had been announced, there appeared in the "New York Medical Journal," January 15, 1887, an abstract of a paper presented by Dr. F. H. Bosworth before the New York Academy of Medicine, December 30, 1887, that appears to include the topic selected for your consideration. However, as the writer has been led to take up the theme from personal observation and experience, a further consideration of the matter may not be amiss, on somewhat narrower lines and from a different personal standpoint.

With the introduction of cocaine into nasal surgery, and the discovery of its peculiar retractive effect upon the engorged turbinated body, has come an ability to examine thoroughly the nasal cavities under most conditions, which has resulted in a decided increase in the therapeutic resources for rhinology, and in an improvement in their results. In the two years past, in consequence, the attention of every rhinologist must have been attracted to the frequency of septal excrescences apart from marked or obstructive deflection of the osseous or cartilaginous parts. As these irregularities of the septum are frequently accompanied by hypertrophy of the opposing turbinated body, they were of necessity often overlooked before cocaine was employed for diagnostic purposes.

These irregularities of the septum are usually found on the sutural lines of the component bones and cartilage. They are osseous or osseo-cartilaginous in structure. Occasionally they are pure ecchondroses, but rarely so without deflection of the triangular cartilage, in which case they are found on the convexity of the deflection. Their most frequent location, in my experience, is the sutural line of the vomer and maxilla, just within the anterior nares, and, of course, close to the nasal aperture. The outgrowth usually springs abruptly at right angles to the septum on its inferior margin, and, receding gradually, blends with the cartilaginous septum above. It rarely extends more than half an inch antero-posteriorly in structure. It occurs with equal frequency on both sides, and occasionally on both sides at once. The next location in order of frequency is on the sutural line of the vomer and the perpendicular plate of the ethmoid, about opposite the posterior third of the middle turbinated body. Here the outgrowth is usually a spur-like development, with small base and sharp apex, occasionally impinging firmly on the opposite turbinated bone, and is a pure exostosis, often of extreme hardness. The ecchondrosis, on a more or less deflected septum, as mentioned above, occurs next in frequency. It is a rounded knuckle or sharp spur, and lies immediately within the nostril, occasionally being mistaken for polypus by the inexperienced. Lastly, there is an osseo-cartilaginous ridge formed upon the line of juncture of the vomer, the triangular cartilage, and the perpendicular plate of the ethmoid, sloping upward and backward, occasionally extending the entire length of the nasal chamber, and visible by posterior rhinoscopy as a more or less elevated tumor within the posterior nares.

These septal irregularities vary in size and number in all degrees, and appear to exist without regard to sex or social condition of the patient; I feel tempted to add, without regard to age. I certainly find them in patients as young as five years. In spite of excellent authority to the contrary, I am inclined to regard

them as not usually of traumatic origin, but rather due to hereditary peculiarity of development. This belief is confirmed by the often observed similarity of septal deformity in members of the same family.

Jarvis, in papers appearing at various times in the "Archives of Laryngology," the "Medical Record," the "New York Medical Journal," and other periodicals, has exhaustively considered the etiology of deflected septum, alone or in connection with other topics. He shows quite conclusively its habitual relation to faulty development, rather than to traumatism, and cites cases where the deformity appears to be hereditary. His line of argument may, in part, be applied to septal excrescences without deflection. Certainly the frequency of their occurrence, the limited area usually involved, and its often deep seat, point to structural changes from more complicated and wide-reaching causes than local injury. Undoubtedly, a blow upon the nose occasionally produces a deflection of the cartilaginous septum, or even of the entire structure anterior to the plane of the malar bones, but it seems improbable that it should cause a septal spur, for example, near the posterior nares. It is probable that an over-development from the ossific centers of the various components of the septum, or a lack of proportion between their development and that of other bones of the skull or face, produces a hyperostosis on the sutural lines in certain cases, rather than a bending or deflection of more yielding structures, which produces deviated septum in others. Whatever the cause, the frequency of septal excrescences without deflection is indisputable.

It is to the part that these forms of irregularity of the septum narium play in the development of nasal catarrh—to the predisposition that their presence produces for the lapsing of acute rhinitis into chronic nasal catarrh—that your attention is particularly invited.

The researches and publications of Jarvis, Bosworth, Allen and other American rhinologists have established the truth that the prevailing forms of nasal catarrh are essentially local affections, though often far-reaching in their influence. It is now generally recognized that marked deflection of the septum narium, polypus, hypertrophy of the turbinated bodies, or any obstruction to nasal drainage and ventilation, must be removed, to admit of relief or cure of the various symptoms of obstructed respiration and perverted secretion which make up the picture of the ordinary and most frequent forms of rhinitis. The rôle of the septum in producing certain forms of irritative hypertrophy of the turbinated bodies, so strenuously advocated by Jarvis, is now receiving wide-spread attention. The effect of a deflected septum, with its usual exostosis or ecchondrosis on the convex side, has been traced by Jarvis and others, and the successive steps of the resultant nasal catarrh have been minutely described. The importance of deflection of the septum as an etiological factor in catarrh was thus recognized before the cocaine era in nasal surgery.

But there is a large class of cases in which there is not present a deflected septum, nor a typical hypertrophic catarrh—in which there is rather an irritability of the turbinated body, a relaxation of vaso-motor control, and frequent engorgement, with excess of secretion and nasal obstruction, alternating and irregularly recurrent—cases classified by some as chronic coryza, by others as a preliminary or first stage of hypertrophic catarrh. Accompanying this condi-

tion there is often an increase of the normal naso-pharyngeal secretion, and a drainage of the over-secreting nasal chambers into the naso-pharynx.

The greatest number of cases of nasal catarrh occurring in otherwise healthy individuals is of this type, and it is in the production of precisely these cases that irregularities of the septum narium, of the kind under consideration, play a prominent part. In that portion of our country bordering on the great lakes and the Atlantic an occasional acute coryza falls to the lot of all. The occasional rhinitis of those in good health, with ample nasal chambers and without septal irregularities, recedes in time, leaving no unusual or annoying symptoms behind. Where an exostosis or ecchondrosis narrows the lumen of the meatus, the influence of pressure irritation, so well explained by Jarvis, tends to prolong the period of congestion and engorgement, and to produce an irritable point on the opposing turbinated bone. This spot of subacute inflammation affords a vulnerable point, and soon another "cold" adds its quota to the already existing irritation, and increases the liability to further inflammation. Obstruction to nasal sewerage and ventilation occurs and recurs, and in this vicious circle a chronic catarrh of the type mentioned is set on foot, to be fostered by climate, habitation, and habits; for it is not for a moment assumed that nasal catarrh is entirely a local affair, uninfluenced by the other functions and conditions of the body. But it is asserted that, in the form of rhinitis under consideration, the disease is largely influenced by local conditions, and relieved in the main by local treatment.

Septal outgrowths are not uninfluenced by these recurring inflammations, and show a tendency to growth from the increased vascularity and excess of nutrition accompanying the chronic inflammation. This is evidenced by the distinct history, occasionally given, of complete occlusion of one nasal passage within a year or two of the time of examination, and where the obstruction is found to be caused by the bony or cartilaginous spur or ridge. When a septal spur or ridge arrives, by natural growth or from inflammatory overfeeding, at sufficient size to project into the lumen of the meatus, so that, when the turbinate is at its average point of distension under ordinary conditions, the apex of the spur almost impinges upon it, the slightest disturbance of balance of vasomotor tension produces pressure and occlusion, as indicated above. Under the trying conditions of our climate, this balance is repeatedly disturbed, and repeated local irritations occur, which gradually become more constant and severe, and a chronic catarrh may thus occur gradually, and without preceding "colds" or severe rhinitis. In cold, dry weather, or in the mild, even weather of early fall, such patients have little or no annoyance, but the return of inclement weather renews the unpleasant symptoms.

Very slight changes of climate effect decided changes in these patients. For example, some who are constantly annoyed in Buffalo are comparatively free from catarrh in New York. Most of the patients who report themselves free from indications of nasal catarrh before living in the lake region, and who afterward develop catarrh, will be found to have slight septal irregularities. The dampness and variability of this climate make too great demands upon a nasal apparatus sufficient for favorable environment, and nasal catarrh follows, as indicated above.

To sum up the conclusions of this paper: it is not alone, or in the main, the condition of the general health which decides whether an individual shall or shall

not have a chronic catarrh in our climate. While admitting the influence of general factors not now under consideration—such as lithæmia, imperfect excretion, diathesis, etc.—yet, other things being equal, the presence or absence of septal irregularities, with or without deflection, decides the occurrence of the prevailing forms of chronic nasal catarrh in one person, and their absence in another. Slight irregularities of the septum narium, without deforming or markedly occluding deflection, are a fruitful source of irritation in a large proportion of cases, inviting and inducing recurrent rhinitis under slight strain upon the power of resistance from climate or environment.

Notes on Hæmorrhagic Infarction.

Dr. William Osler, of Philadelphia, in a paper, read before the Association of American Physicians, June, 1887, says:

Regarded as an incident in the course of various affections, hæmorrhagic infarction has no special status as a morbid entity, and can scarcely be considered apart from those conditions which render its occurrence possible: namely, a certain anatomical arrangement of the arteries, with obstruction of a terminal branch by an embolus or a thrombus. Into anatomical details I do not propose to enter, but shall confine my remarks, first, to the conditions in which we meet with infarction; and, second, to special features of the process in certain organs.

In looking over the notes of a number of cases in which infarctions occurred, I find they may be grouped into three sets: First, cases with fresh endocarditis, and lesions unquestionably embolic; second, cases in which there was thrombosis in regions other than the affected vessel; third, cases in which, so far as could be ascertained, the infarction resulted from the formation of a primary thrombus in the affected vessel, or was part of a condition of multiple thrombosis.

Upon the first group of cases I shall not dwell further than to note that conditions of the endocardium, apparently the most favorable, may exist without the occurrence of infarcts. In several instances of severe ulcerative endocarditis, there was a notable absence of multiple emboli; while in others the distribution has been peculiar—for instance, to the abdominal viscera, or to the intestine chiefly. I have, also, the records of twenty cases with numerous endocardial vegetations, in which there were no infarcts.

In the second group, the infarctions resulted from the dislocation and transference of fragments of thrombi which had formed in various parts of the vascular system. In reality, there is no essential difference between these cases and those of the endocarditis group; as, in the latter, the emboli are chiefly small thrombi, which have formed on the valves as a result of inflammation. We meet with cases of this class under conditions of feebleness of the blood-current, and in septic and certain other states, in which there is a special tendency of the blood to clot within the vessels. Whatever may be the cause or causes which prevent the coagulation of the circulating blood, we must admit that rapidity of the current plays an important part. Loss of the normal endothelium, upon the presence of which Cohnheim lays so much stress, as the essential factor in maintaining the fluidity of the blood, may exist to a remarkable extent without any clotting. Instances are not uncommon of the most extreme calcification of the aortic intima with rough, exposed surfaces, and no trace of thrombosis. So, also, in certain

aneurismal sacs. How often are we surprised at the absence of the expected lamellar clots. Recklinghausen has specially insisted upon this, and claims that slowness of the blood-stream, and sudden dilatation in its course, are much more important elements in the production of marasmus thrombi than loss of integrity of the vessel wall. The recent observations upon the formation of thrombi touch this question in an interesting manner, and bear directly upon it. Evidence has been gradually accumulating to show that the blood-plaques play a leading *rôle* in the early stages of thrombus-formation. My observations on this subject would lead me to conclude:

(1) That certain of the marasmatic thrombi so common in the iliac, femoral, and pelvic veins are composed, in great part, of blood-plaques.

(2) That the globular thrombi of the heart cavities are largely made up of the same elements.

(3) That they play an important part in the formation of laminated coagula of aneurismal sacs.

(4) The soft thrombi which form on atheromatous patches of the aorta are, to a great extent, aggregations of blood-plaques.

To these facts, we may add the experimental demonstration which I, as well as others, have offered, that in a lacerated vessel these bodies are the very first elements to adhere to the torn tissue, and form the basis of the thrombus.

One among many of the interesting points determined by Eberth and Schimmelbusch, in their investigations on this subject, is the relation of the plaques to the blood-stream. When this is rapid, they keep a central position with the red corpuscles; but when, from any cause, the current slackens, they accumulate in the peripheral still layer, and tend to adhere to the intima. When the velocity of the flow is maintained, there may be a lesion of considerable extent without any attempt at clotting; but if the stream slackens, the first effect is the agglutination of the blood-plaques on the torn surface, and the formation of a white thrombus.

Now, the connection of this with the subject in hand lies in the fact that we most commonly meet with thrombi in conditions of general or local feebleness of the circulation. The infarcts occurring in this group of cases are, as a rule, easily traced to their source: those of the lungs to the globular thrombi of the right chambers, or clots in the systemic veins; those of the brain, abdominal viscera, and extremities, to the thrombi in the left chambers, in aneurisms, or on atheromatous surfaces.

In the third group, we find the infarction and the plugged vessel, or we find multiple infarcts; and the most careful search fails to reveal either the primary source or local conditions sufficient to account for thrombosis. Such instances are not very uncommon; and I have picked out fifteen cases from my records in which, so far as could be ascertained, the hæmorrhagic infarction was due to a local thrombotic process. A majority of these were associated with specific fevers—typhus, typhoid, diphtheria and septicæmia. One was a case of cholera-morbus, one of acute Bright's disease, and one occurred in a case of morphia-poisoning. The tendency to thrombosis in certain of the fevers is well recognized, and in these cases some other factor than debility may come into play. It is worth noting that in septic states, in which we so often meet with thrombi, the blood-plaques are exceptionally abundant.

Here and there in literature, we find recorded instances of multiple thrombi and infarcts in association with an acute febrile condition. As these cases are of extreme rarity and very obscure, I will here report a case which occurred under my care last year:

John Mullen, aged twenty, laborer, admitted to Philadelphia Hospital, October 10, 1886. He was a well-built, healthy-looking man. Had been a hard drinker at times. Two years ago, in Pittsburgh, had typhoid fever; ill for six weeks. Present illness began, about a week before admission, with diarrhœa, and the patient felt constantly weak and exhausted, and had no appetite. For two days he had nose-bleeding. When first seen, on the 11th, pulse 112, temperature 102⅘°, respiration 20; was rational. Expression of face dull. Complained of pain in abdomen, which was slightly swollen, and, on palpation, painful in left hypochondriac region. Beneath skin of anterior thoracic region, and of abdomen, were many localized blue spots (tâches bleuâtres). Heart-sounds muffled; no murmur. Examination of lungs negative. Urine clear, no casts, trace of albumin. Tongue coated, white. Splenic dulness increased; edge not palpable.

On the 12th and 13th, the temperature did not rise above 103⅘°; the abdominal pain increased; was most marked in splenic and inguinal regions. Delirium almost constant, though, at times, he could be roused to give an intelligent answer. Had one or two loose stools; no diarrhœa. No characteristic eruption. The *blue spots* persisted. Tongue became dry. On the evening of 13th, the feet were noticed to be very cold, and he complained of it; and, on the 14th, the feet and legs, as high as the knees, were cold, slightly swollen, and of a mottled, red color; pulse 120, temperature 102°; great restlessness; persistent delirium; abdominal tenderness continued, particularly over the spleen, the dulness of which extended to a little below costal border. Heart feeble; no murmur. On the 15th and 16th, the legs became of a deep, livid-red color, as high as middle of thighs; no pulsation in femoral or popliteal vessels. Low delirium; tongue dry; pulse 120–140, temperature 101–103°. Blood examined, with negative result. Urine scanty, albuminous. He sank, and died on the morning of the 17th, a week after his admission, and about two weeks from the beginning of his illness.

The case was regarded as one of typhoid fever, the epistaxis, diarrhœa, and abdominal swelling and tenderness supporting the opinion, though a doubt always existed, on account of the very positive statement of an attack two years before. The thrombosis in the iliacs and gangrene of the legs were looked upon as illustrations of a rare, but well-recognized, sequence of typhoid fever. The autopsy showed thrombosis of the lower two inches of the abdominal aorta, with plugging of iliacs and femorals, the clots firm, reddish-brown, and closely adherent. Mesenteric vessels free; two large branches of the splenic artery plugged. The spleen, three times the normal size, presented three or four infarcts; the upper one, as large as a small orange, was soft, covered externally with thick layers of lymph, and closely united to the stomach and colon. From this point extended a general peritonitis. The right kidney presented two large, red-brown infarcts. The ileum was normal; no hæmorrhoids; bladder, prostate, and testicles normal. No endocarditis; lungs normal. Brain healthy,; no otitis; no bone-lesions. During life, the blood was carefully examined for micro-organisms, but none were found. After death, in the infarct of the spleen, and in the lymph covering it, there were numerous micrococci.

Passing from a consideration of the condition under which infarctions occur to special features of the process in certain organs, I will submit, first, an interesting, possibly a unique, instance of hæmorrhagic infarction of the liver. Under ordinary circumstances, this is impossible, for although the terminal branches of the portal vein have not extensive anastomoses with each other, occlusion is of no moment so long as the circulation is maintained in the hepatic artery. Indeed, as in a case which I reported,* there may be for years complete obliteration of the portal vein without interference to any apparent extent with the functions of the organ. The case is as follows:

A. B., aged sixty-two; an old soldier and a hard drinker. Illness began in June, when he had dropsical symptoms. In July he took a voyage from Newfoundland to Labrador, and came to Montreal, September 27th. He had been ill nearly all the way from the Gulf, and the dropsy had increased very much. When admitted to the General Hospital he had ascites, vomiting, and hæmatemesis. Death took place on the second day after admission.

Autopsy: Much fluid in peritoneum and in left pleura. Heart and lungs normal. Stomach contained a bloody fluid; mucous membrane stained, not eroded. Small intestine contained a quantity of altered blood. Liver was large; weighed 2,400 grammes (6 lbs.); capsule a little opaque, and at right border was a little thickened. Organ extremely cirrhotic, the lobules mapped out in small irregular areas, not projecting much, but giving the characteristic granular appearance. A considerable portion of the right lobe presented a remarkable appearance, neither like a normal, nor like a cirrhotic organ. There were areas of red-brown and light-brown tissue, in places mottled, very dry, friable and readily torn. Strands of connective tissue passed through these parts, but the cirrhotic character was lost. The appearance resembled that of a firm infarct of the spleen. Microscopical examination showed the reddish areas to contain innumerable blood corpuscles, infiltrating the entire tissue. The liver cells were small and fatty, in places indistinguishable. The portal vein presented a soft brown thrombus, occupying the upper part of the trunk, but not completely obliterating it; the branches passing to the right lobe had closely adhering light-brown thrombi; that passing to the antero-lateral region, where the infarct was situated, was filled with a firm, solid, partially laminated clot, evidently formed some time before death.

The condition of infarction is stated not to occur in the liver, owing to the fact of a double blood-supply, and if a branch of the vena portæ is plugged, the capillaries of its territory receive blood through the hepatic artery, and *vice versâ*. In this case we may suppose that the interlobular connective tissue growth had obliterated a majority of the hepatic artery branches in the affected region, and had thus converted certain trunks of the vena portæ into terminal vessels, which, when plugged with solid thrombi, induced a condition of infarction in the area supplied by them. With the exception of a case to which Recklinghausen refers, I do not know of any other instance, in literature, of infarction of the liver.

Hæmorrhagic infarction of the intestine is an interesting lesion, which we meet

* Journal of Anatomy and Physiology, London, 1882.

with in two forms: the one, a local process in the mucosa, the other, a general condition involving a portion of the entire gut.

Small infarcts of the mucous membrane are by no means infrequent in ulcerative endocarditis; they vary in size from that of a pea to that of a half-dollar, and present a central necrotic area, a zone of intense hæmorrhagic infiltration and congestion, and a central plug in the nutrient artery. In one instance I was able to find the embolus, and to determine its identity with the myotic vegetations on the aortic valves. The central necrotic area may slough and leave a distinct ulcer.

Infarction of an entire section of the bowel is not a very common event in man; indeed, considering the large size of the superior mesenteric artery, we may wonder that it does not occur oftener. In the horse, on the other hand, it is an extremely frequent lesion, resulting from the transferrence of portions of clot from the verminous aneurisms which are so common in the mesenteric arteries. The fatal colic of these animals is the result, in a great majority of the cases, of hæmorrhagic infarction of the intestine. I have long been familiar with this condition, and have sought carefully for instances in man. The following cases illustrate the the similarity of the lesions to those produced experimentally, as related by Dr. Welch:

Case I. A woman, aged fifty-five, had suffered for a year or more with dyspeptic symptoms, and had vomited a small amount of blood, had lost flesh, but was not cachectic. No tumor of the abdomen could be made out, but cancer of the stomach was suspected. The details of the last week of her illness are as follows: On April 14th, 15th and 16th, she had nausea and vomiting: on the 17th she went to bed. There was vomiting and considerable epigastric pain; pulse about 90. On the 18th she was easier; on the 19th, much worse; she had fainted in the night; pulse weak, 115; face pale, feet cold, vomiting frequent. In the evening the temperature was 101°, pulse 120; the pain in the abdomen was more diffuse, and there was considerable distension. On the 20th, condition did not improve, though, under opium, the distress was not so great. On the 21st, prostration more marked, and the next day the vomiting was distinctly fæcal and frequent. Death on the 23d.

At the autopsy, the small intestine, from an inch or two below the duodenum to within two inches of the valve, was dark in color, distended, and covered in places with a thin sheeting of lymph. Several spots in the ileum looked almost gangrenous, and here and there extravasations had taken place. The coats were infiltrated, the mucosa soft, and there were three spots (ulcers) from which the membrane had disappeared. There was no heart disease. In the abdominal aorta, a few flakes of atheroma. At the orifice of the superior mesenteric artery was a large button of atheroma which had ulcerated on the surface, and to which was attached a firm thrombus, completly blocking the vessel for one-and-a-half inches from the aorta.

Case II. A woman, about seventy-five years old, was admitted to the hospital under Dr. Ross, with necrosis of the femur. She was seized four days afterward with severe abdominal pain and frequent vomiting; there was diarrhœa at first, and then symptoms which pointed rather to obstruction: persistent vomiting, and great distension of the belly.

At the autopsy, the small intestine was found greatly distended and of a deep livid-red color; no inflammation of the peritoneum, but about one and one-half pints of bloody serum in the sac. The coats of the bowel were swollen and deeply infiltrated with blood and serum. For about a foot from the pylorus the appearance of the gut was normal, and the last six or seven inches of the ileum were also healthy. The mucosa was deeply congested, soft, and readily scraped off. The mesentery was congested and infiltrated. In the heart, the mitral valve presented numerous recent warty vegetations, soft, pedunculated, and easily torn. The aorta was moderately atheromatous. Dissection of the cœliac axis showed the splenic artery blocked by a firm brownish thrombus, which extended from about an inch from the hilus into the branches of the second and third degree. The organ was small and had a turbid, reddish-brown appearance. The hepatic artery was occluded by a firm thrombus, which began near the bifurcation and extended into both branches. The superior mesenteric artery contained a firm brownish-yellow clot, which began about a quarter of an inch from the aorta and extended an inch and a half into the two main branches. Before this chief division, six smaller vessels were given off, all of which were plugged. In tracing down the larger branches, two of them contained firm thrombi about an inch from the bowel.

Case III. J. C., aged forty, an engineer, large, muscular man, patient of Dr. Gardner. Good health up to a year before death, when he began to suffer with pains in the back. While wheeling a barrow full of cinders, he was suddenly seized with intense pain in the abdomen and groins, became faint, fell to the ground and vomited. He lived a week afterwards. The chief symptoms were persistent vomiting, which resisted all the usual remedies; severe diarrhœa; great pain in the abdomen, which was distended. The voice was husky, eyes sunken, features pinched, and the whole appearance choleraic. The stools were thin, and at times blood-tinged. The temperature did not exceed 101°; pulse was small and infrequent, rarely over 90.

The autopsy revealed an abdominal aneurism, involving the aorta just at the diaphragm. The axis, and superior mesenteric and renal arteries were given off from the sac. There was a dissecting aneurism of the lower part of the abdominal aorta and of the iliac artery. The blood had passed from the sac, beneath the intima, at the hinder part of the aorta, on the right side, and had passed into the iliac, elevating the intima, narrowing the calibre of these vessels. On the right side of the external iliac artery it had burst externally by a tiny orifice, and a thin sheeting of blood extended beneath the pelvic peritoneum and in the lumbar region. The small intestine was swollen, and of a deep purple-red color; the walls infiltrated with blood and serum. The superior mesenteric artery arose from the most prominent part of the sac, and the orifice was dilated. About half an inch within the vessels was a firm plug of the fibrinous lining of the sac which had been dislodged and carried into the artery. There was a pretty firm coagulum about it, and on the distal side a dark clot. The mesentery was thickened and infiltrated and its veins full.

Regarding hæmorrhagic infarction of the lungs, I would refer briefly to the following points:

(1) The frequency with which we find vessels plugged, without resulting infarction, even when the obstruction is total.

(2) The important part played by globular thrombi of the right auricular appendix in the production of infarcts, particularly in the last stages of valvular disease.

(3) The occasional occurrence of thrombotic infarction as a result of local disease of the pulmonary artery. We find this, as in the specimens I show, in atheroma of its branches, in mitral stenosis, and in the endarteritis induced by the encroachment of tubercles in chronic phthisis.

(4) The occurrence of cases of pulmonary infarction, in which a careful and thorough examination, such as it is ordinarily possible to make in hospital work, fails to give any clew to the origin of the obstructing thrombi.—*Boston Med. and Surg. Journal*, October 6, 1887.

Recent Progress in Anatomy.

Dr. THOMAS DWIGHT in a paper on this subject, says:

The Length of the Fingers and the Movements of the Wrist.—Professor Braune and Dr. Fischer have written an admirable paper on the mechanics of the human hand, which is shortly to appear in the Proceedings of the Royal Society of Sciences of Saxony. In the meantime, Professor Braune has given an abstract of the paper before the Anatomical Society of Germany,* and the part on the length of the fingers has appeared elsewhere.† The results of the measurements of the fingers are not in accord with those hitherto accepted, made, we believe, by measurements from the living or undissected hand. Thus Mantegazza found, in seven hundred and twelve cases, that the ring finger was longer than the index in five hundred and eighty-nine, and shorter in ninety-one.

Braune and Fischer point out some of the causes of fallacies in measurements of the fingers on the living. In the adult, the phalanges of the four fingers are not in line with their metacarpals, but are bent towards the ulnar side. The forefingers can be brought towards the thumb only enough to bring it into line. If we place it thus, and bring the other fingers against it, the apparent relative length of the fingers is strikingly changed. In these studies, the length of the metacarpal bone is measured from the middle of the base. The observations were made on forty ligamentous preparations. To avoid error from abduction or adduction of the fingers, the relative lengths of the index and ring fingers were taken by connecting by a straight line the middle points of the bases of the metacarpals, and measuring the fingers along straight lines drawn perpendicularly to this one. In twenty-six cases, the system of the index (all included) was longer than that of the ring finger; in ten cases the ring finger was longer, and in four they were equal. The order of the metacarpal bones, arranged according to length, is the second, third, fourth, fifth; first. Twice the third surpassed the second by trifling quantities, and three times they were equal. The systems of the phalanges of the several fingers are as follows, in the order of length: third, fourth, second, fifth, first; which shows that the greater length of the index, compared to the ring finger, is due to the metacarpal. The relative length of the proximal and middle phlanges respectively, is, with a few exceptions, the same as that of the entire

*Anatomischer Anzeiger, 1887, No. 12.

† Archiv für Anatomie und Entwickelungsgeschichte, 1887.

phalangeal system. There are, moreover, measurements showing the part each bone contributes to the length of the finger, which is called 100.

	Metacarpus.	1st Phalanx.	2d Phalanx.	3d Phalanx.
Thumb	47	31	22	
Index,	44	27	17	12
Middle,	40	29	19	12
Ring,	38	29	20	13
Fifth,	42	27	16	15

This does not quite correspond to Langer's formula for the middle finger, in which the relative lengths of the bones are represented by eight, five, three, two; the metacarpal being equal to the first and second phalanges, and the first phalanx to the other two. Langer, however, measured the distance between the several axes of rotation of the joints.

In studying the movement of the wrist, the entire motion was first measured, and then an intermediate or neutral plane found to serve for a starting point. The motions of every point of bone firmly connected with the joints was found to be in concentric sections of a sphere, the centre of which is in the head of the *os magnum*.

It is well known that flexion and extension of the wrist occur in two joints, the first between the radius and the carpus, and the second between the two rows of carpal bones; but authorities differ as to the share of each joint. Braune and Fischer find that the radio-carpal joint is much more concerned in flexion than in extension, and somewhat more in bending the hand to the ulnar side than to the radial. In the intercarpal joint, extension was about three times as free as flexion and movement towards the radial side; rather greater than towards the ulna. They found, further, that if the three proximal carpal bones are fastened immovably together, so as to form but one, motion, especially extension, is much diminished in the intercarpal joint. Thus the motions of the hand take place around the head of the *os magnum*, which is embraced by two concentric sockets, each made of movable pieces, for not only is there motion between the separate bones of the first row, but the relations of the lower end of the radius, the triangular cartilage, and the end of the ulna, change also. This is due to looseness at the elbow, allowing some change of relative position between the bones of the forearm.

The Mechanics of Certain Movements of the Fingers.—It is well known that if the middle phalanx of one finger be flexed on the first (it does not matter whether the latter be flexed on the metacarpal or not), the last phalanx is powerless. It may be bent or extended by the other hand, but cannot be moved in obedience to the will. M. Tuffier* has written a paper on this, which is interesting in several respects, though it does not contain much that is very new. A very important point is brought up incidentally; namely, the insertion of the common extensor of the fingers. In most works, it is described as inserted into the second and third phalanges. No notice is taken of its insertion into the first phalanx, though it is a very important point, and has been correctly described by Duchenne. Tuffier points out that, if the tendon be cut at the middle of the metacarpal bone, re-

* Archives Générales de Médecine, Mai, 1887.

flected and dissected from below, the insertion into the base of the first phalanx is evident. The writer of this report has been in the habit of demonstrating the point as follows: He divides the tendon at the middle of the first phalanx, cuts the lateral expansions, and reminds the class that, if the usual description be correct, the tendon should now be free, or held only by areolar tissue. He then shows that it can be torn loose from the first phalanx only by great violence. Tuffier points out that it is inserted, also, into the distal half of the capsule, so as to pull it out of the way of the joint. The continuation of the tendon is joined by fibres from the lumbricales and interossei, some of which arch over the dorsum of the first phalanx, while others join the lateral prolongations of the tendon which go to the last phalanx. When the second phalanx is flexed on the first, the expansion is drawn forward, the middle tendon to the base of the second phalanx is tense, while the lateral parts of the tendons just mentioned tend to slip off to the sides of the end of the first phalanx, and become relaxed. Tuffier ascribes to the tension of the middle tendon a subordinate share in the production of the flaccidity of the last phalanx. There may be some question about this; but he is undoubtedly right in ascribing the chief share to the relaxation of the tendons which run to the last phalanx. He confirms this by a very neat experiment. The second phalanx being flexed on the first, a pin is passed under the tendons at the end of the former, so as to hinder the relaxation of the lateral parts, and it is then shown that the last joint is no longer loose. The reason why it cannot be actively flexed is much more simple. This depends on the interlacement of fibres in the different divisions of the deep flexor, If all the fingers of one hand be put in the described position, the want of power of extension of the last phalanges persists, but they can be actively flexed. This power is wanting only when one finger is so placed.

*The Palmar Fascia.**—Dr. Max Grapow has written a very detailed description of the palmar fascia, which is intended to determine with precision several smaller points. We shall allude merely to the deductions as to the uses of the fascia. First, it secures the arching of the skeleton of the hand, and resists its flattening under pressure. Second, it has a hydraulic action, and by its alternate stretching and relaxation drives the venous blood and lymph towards the heart. Third, it renders the grasp of the hand surer by its intimate adhesion to the skin. Otherwise the skin would fall away from the hand as is the case with even the closest fitting glove.

The Sheaths of the Tendons of the Hand and Wrist.—This important subject has of late received much attention. Dr. Larger,† a few years ago, described a new sheath connected with that of the tendons of the radial extensors. This new sheath is above the tendons at the place where they are crossed by the tendons of the extensor ossis metacarpi pollicis and that of the extensor primi internodii; its describer calls it "*la gaine anti-brachiale.*"

Debièrre and Rochet‡ were induced by this paper to investigate the subject again. Their results by no means agree with those of Larger. Beneath the ten-

* Archiv für Anat. und Entwickelungeschichte, 1887.

† Revue de Chirurgie, 1882.

‡ Archives de Physiologie. Série III. Tome 9, 1887.

dons of the extensors of the metacarpal bone and of the first phalanx of the thumb they found a serous bursa which Larger had mentioned as "accidental and professional," resulting, according to him, from twisting the hand on the arm. Debièrre and Rochet, however, found it in every one of forty extremities on the left as well as on the right, in women as well as in men, and in children as well as in adults. They accordingly considered it constant. This bursa having been opened, the radial extensors are seen beneath its deep wall, and the *gaine antibrachiale* should be found between them and it. The observers, however, never found it at all, and set it down as an artificial production. They find the synovial sheath of the two radial extensors, usually single but sometimes double. In the former case it always communicates with that of the extensor secundi internodii pollicis. When it is double, the sheath for the longer radial extensor is quite closed, but that of the shorter one communicates with the extensor of the second phalanx of the thumb. It would appear from this that there is a discrepancy between these authors and Gruber, of St. Petersburg, who found that the sheath of the latter tendon communicated with that of the radials 149 times in 290 cases.

A very interesting and even more important paper is that of Dr. Alfons von Rosthorn* on the

"*Synovial Sheaths of the Flexor Tendons in the Palm of the Hand and in the Fingers.*" If he is right, and his paper is very convincing, the descriptions in our text-books are wrong in important respects. These, however, are by no means the same. For instance, in the tenth edition of "Gray," the following statement is found: "A synovial sheath invests the tendons as they pass beneath the annular ligaments; a prolongation from which surrounds each tendon as it passes along the phalanges." This, however, may be dismissed at once as behind the times. "Quain's Anatomy," ninth edition, is by no means up to its average in this matter. "The tendons of both the superficial and deep flexors, as well as the median nerve, are surrounded by the annular ligament, by a large and loose synovial bursa, which extends upwards to the level of the radio-carpal articulation, and downwards to a little beyond the bases of the metacarpal bones, being prolonged further on the little finger than on the others. According to Max Schüller, this bursa is double, the sheath investing the two ulnar finger being separated by a longitudinal partition from that of the index and middle finger tendons. The latter division communicates opposite the upper border of the annular ligiment, by a small aperture, with the synovial sheath of the flexor longus pollicis tendon."

Tillaux's description is the one generally accepted. There are two sacs, one for the tendon of the flexor of the thumb, which extends from the wrist to its insertion, the other encloses the flexors of all the other fingers, extending to the end of the little finger, but stopping short of the other fingers, each of which has a separate sheath.

Von Rosthorn describes two chief sacs which are separated at the upper end by the median nerve. The radial one corresponds to Tillaux's description, but the ulnar one differs from it in essential points. It encloses only the tendons of the fourth and fifth fingers in the palm of the hand, and is usually continuous with

* Archiv für klinische. Chirurgie. Band xxxiv, 1887.

the sheath of the tendons in the little finger, rarely with that of the ring finger. The second, third and usually the fourth fingers have separate sheaths opposite the phalanges, and the tendons of the index and middle finger have no synovial sheath in the palm. Another important fact which he has shown, is that in the young child, each of the five fingers has a separate synovial sheath of its own, and that the almost constant junction of that of the thumb with the radial sac and the usual junction of that of the little finger with the ulnar one are the results of secondary changes, not the primitive condition. Occasionally a third carpal sac is found between the other two. The more common arrangement of this additional sac is for it to be wedge-shaped, with the base above and the point separating the other two for a short distance. It contains in this case no tendon. More rarely it completely separates the other two sacs and contains the tendon of the deep flexor of the index. The superficial tendons of the index and middle fingers may, as an exception, have independent sheaths of their own in the palm of the hand, communicating neither with one another nor with the carpal sacs, nor the phalangeal sheaths. That of the index is the more common, and Von Rosthorn found it particularly well developed in the hands of robust workmen. The superficial tendons of fourth and fifth fingers have frequently imperfect synovial sheaths in the palm of the hand inside the carpal synovial sac and communicating with it.

This writer gives much attention to the curious question of how these tendons, when inclosed in synovial sheaths, receive their vascular and nervous supplies. He finds an arrangement of synovial folds perfectly analogous to that of the mesentery. Some tendons, like that of the thumb, have a true fold, others project partly into the synovial cavity after the fashion of the descending colon. Sometimes, however, the long fold is interrupted, and then the comparison no longer holds. The vessels, of course, reach the tendon on the reverse side of the synovial membrane. There are many points of detail for which the reader is referred to the original.

A word on the methods employed may not be out of place. Dr. Dwight bears witness to the difficulty of making trustworthy injections of synovial sheaths; that is, such as shall exclude all suspicion of extravasations. Debièrre and Rochet often inflated the sheaths with a subcutaneous syringe, which makes so small a hole that the air does not escape when the tube is withdrawn. This is a useful method for study, but one which will not give permanent results. They also used injections of mercury, which seems to Dr. Dwight one of the worst possible masses for the purpose. There are others that run as finely, are easier to manage, and more durable when made. Von Rosthorn recommends Teichmann's mass, which is essentially sealing-wax dissolved in ether or other evaporating fluid. Some of his illustrations represent really beautiful injections. When the sheath is injected from the end of the finger there is often much difficulty in persuading the mass to run through the narrow passage, and it is useful to move the finger and rub it gently towards the palm. In the fingers whose sheaths do not join the carpal sacs, we gather that it is well to make a counter-opening for the escape of the synovia. Another method that gives less striking but valuable results, is to distend the sheaths with tallow, which is to be removed when the sheaths are hardened. Windows can then be cut where it is desired to have them.

The Relation of the Thyroid to the Cerebral Circulation.—Prof. Waldeyer* made some remarks on this point before the Berlin Medical Society, which, though not wholly new, deserve mention. He gives Staël credit for having pointed out relations between the superior thyroid artery and the internal carotid. It is well known that the latter enters the skull through a canal which cannot be distended, however violent the heart's action may be, and also that the artery is very tortuous, thereby protecting the brain. The effect of both these arrangements is to make it probable that there is occasionally a certain "backing up" of the blood in the internal carotid, and this artery very frequently has a dilatation just at its origin, which, under such circumstances, would come into play. Staël has shown that when the superior thyroid (the first branch of the external carotid) is small, this bulb is large, and when the superior thyroid is large the bulb is wanting. It is therefore probable that the thyroid acts as a reservoir to receive an excess of blood passing through the carotids and subclavians. Waldeyer points out that precisely the same relations exist between the vertebral and the inferior thyroid arteries. This seems rather a strong statement, but an analogy is evident. Comparative anatomy seems to support the theory of a relation between the circulation of the brain and that of the thyroid. Only in the apes do the vertebrals nearly equal the carotids. In lower mammals the vertebrals become less important and the carotids alone supply the brain. In the ox and the horse the occipital artery takes a part in the cerebral circulation. Now in the majority of mammals both the thyroid arteries come from the carotid; that is, from the artery supplying the brain. Waldeyer believes that he has found an arrangement in the thyroid, fitting it to receive sudden extra supplies of blood. The capillaries have numerous diverticula which allow them in case of need to expand into sponge-like structures.

The Pharyngeal Opening of the Eustachian Tube†.—Casimir von Kostanecki has written an elaborate and very valuable paper on the Eustachian tube and its relations, especially at the pharynx. Much of it is necessarily so technical that it seems unadvisable to attempt an abstract of it. One point which deserves especial attention is the great individual variation of the arrangement of parts in the pharynx. The cartilage at the back of the opening presents many shapes and degrees of development, and on this, together with the thickness of the mucous membrane and the amount of adenoid tissue, depends the prominence of the fold between the orifice of the tube and the fossa of Rosenmüller. There are many admirable illustrations that show the various forms with a clearness that a description cannot have, and which will repay careful study. The author gives several measurements of the distance of the orifice of the tube from other points.

First, The distance from the anterior nasal spine varies from 5.3 to 7.5 centimetres.

Second. The distance from the level of the hard palate changes greatly during life. In the fœtus the opening is below the hard palate, at birth it is at about the same level, and in the adult on the average about one centimeter above it.

Third. The average distance from the roof of the pharynx is about eleven or

* Deutsche Medizinal-Zeitung, 1887, No. 22.

† Archiv für mikroskop. Anatomie, Bd. xxix.

twelve millimeters. Naturally, the amount of adenoid tissue in the roof must affect this measurement considerably.

Fourth. The distance from the posterior wall of the pharynx varies from the same cause. The mean is twelve millimeters.

Fifth. The distance from the inferior turbinated bone is extremely variable, ranging in the adult from 4 to 14.5 millimeters. The cause of this is chiefly in the turbinated bone and in the thickness of its covering. Both the size and the shape of the opening are very uncertain.

The Structure and Function of the Thyro-Arytenoid Muscle.—The relation of this muscle to the true vocal cord has not been determined beyond dispute. According to some, the muscle runs along the side of the fibrous tissue of the cord; according to others, the muscular fibres join the fibrous elements. Dr. Alexander Jacobson* has shown by a series of horizontal and frontal microscopic sections, that the latter view is the correct one, and that, accordingly, this muscle may separate the vocal cords, thus sharing with the posterior crico-arytenoid the honor of being an opener of the glottis.

The Morphology of the Sacral Plexus in Man.—Dr. A. M. Paterson† has obtained some very interesting results by his dissections of this plexus. The generally received idea of its formation is that "the nerves unite without much interlacement into an upper large, and a lower small, cord or band." As a starting point, Dr. Paterson insists on the absence of connecting nerve-fibres between the two great branches of the great sciatic nerve, the external and internal popliteal nerves, which are entirely distinct. Sometimes, indeed, they arise independently from the plexus, being separated by a part of the pyriformis muscle. Now the sacral plexus is formed by the anterior primary divisions of a part of the fourth and fifth lumbar nerves, and the first three and a part of the fourth sacral nerves. The two popliteal nerves have a distinct and definite origin. The descending branch of the fourth lumbar nerve and the following three nerves each and all divide into an anterior and a posterior branch. The anterior branches uniting form the internal popliteal, and the posterior branches the external popliteal. The former receives an additional branch from the third lumbar. The small sciatic and the pudic nerve are associated at their origin. The two gluteal nerves arise from posterior branches of the nerves that form the plexus, and thus are associated with the external popliteal, while the nerves supplying the hamstrings are derived from the internal popliteal.

The two largest nerves of the lumbar plexus present striking analogies. The obturator and the anterior crural nerves are (as a rule) derived from the second, third and fourth lumbar nerves, which divide into anterior and posterior parts. The anterior branches unite to form the obturator, and the posterior ones the anterior crural. A glance at the illustration in "Quain's Anatomy" will show this arrangement, though the fact that certain branches are anterior and others posterior is not mentioned in the text. Dr. Paterson goes on to show the areas of distribution of the nerves of the lower extremity. The front of the thigh, knee, leg and foot, together with the glutei and tensor vaginæ femoris are supplied by the anterior crural and the external popliteal nerves; that is to say, by those

* Archiv für mikroskop. Anatomie, Bd. xxix.

† Journal of Anatomy and Physiology, Vol. xxi, April, 1887.

formed by the posterior branches, and these parts belong to the dorsal aspect of the bud, which in very early embryonic life is the precursor of the limb. The parts which come from its ventral surface, to wit, the back and inner side of the thigh, the back of the knee, leg and the sole of the foot, are supplied by the obturator and internal popliteal nerves, which arise from the anterior or ventral branches.—*Boston Med. and Surg. Journal*, November 3, 1887.

*A New Classification of Tumors in General and of Tumors of the Testicle in Particular.**

Dr. JAMES E. PILCHER, in an editorial in the *Annals of Surgery*, September, 1887, says:

In a paper of considerable length, Messrs. Monod and Arthraud have developed a complete classification of tumors in general, and of the seminal gland in particular, in extension of the embryonic theory of Cohnheim. A brief review of the history of the various theories with regard to tumors being considered necessary, they pass rapidly over the earlier hypotheses, beginning with the heteromorphic theory of Laennec, formulated by Lebert and defended by Broca, who considered tumors as parasitic productions absolutely foreign to the constitution of the normal tissues. This was followed by Müller's doctrine of the heterotopia of neoplasms, which he considered to consist of the normal elements, their appearance being referable to a still unknown deviation of the normal evolution of the tissues. In his cellular pathology, Virchow attempted to show the processes employed by the organism to develop these morbid masses in the midst of healthy tissues. The dominant thought of Virchow was the substitution of the observation of present and transient forms of the diseased tissues by the study of the successive transformations which they may undergo; in other words, to replace the idea of form by that of evolution. But in admitting the origin of all tumors from the connective tissues, this author took a step, seductive in its simplicity and destined to great popularity, but not tenable for all tumors. Through the labors of Robin and Waldeyer a grand class has been detached from Virchow's connective tissue family: this class includes epithelioma with its various grades extending to carcinoma, and their origin should be referred to epithelial proliferation and the hypothesis recognized by the name of epithelial theory of cancer.

The true nature and mode of development of sarcoma is still involved in obscurity, and its study is rendered the most difficult in pathology because of its complexity and the almost infinite variety of type which it presents. However, the investigations of Robin on arachnoidal and peritoneal tumors, of Lancereaux on endothelial tumors of the lymphatics of the peritoneum, of Gaucher demonstrating that so-called epithelioma of the spleen developed from the lymphatic and vascular endothelia of the gland, of Waldeyer and Malassez defining cylindroma to be primitively an endothelial or perithelial new formation, and of Monod and Arthraud showing that certain melanotic tumors of the retina, commonly described as sarcomas, should be considered as endothelial tumors more or less diffuse in form—these investigations have detached from

* Considerations sur la classification de tumeurs du testicule. Par le Dr. Ch. Monod et le Dr. G. Arthraud, de Paris, *Revue de Chirurgie*, 10 Mars, 1887.

the class of sarcoma, as originally constituted, certain tumors, the point of origin of which is manifestly in an endothelial surface, and which constitute a distinct anatomical group, that of endothelioma.

It is believed, however, that between sarcoma and endothelioma a relation exists similar to that between carcinoma and epithelioma. Such a relation is excellently shown in the angiolithic sarcoma of the arachnoid, which is in reality a form of endothelioma of the serous membrane, and presents numerous varieties extending from the pure endothelial type to sarcoma, by transitions which can be followed step by step. Moreover, just as certain epitheliomas sometimes recur and extend under the form of diffuse epithelioma (carcinoma), so also certain pure epitheliomas may be transformed *in situ* or at a distance into diffuse sarcoma. This is true for example in sarcoma of the choroid, which at the beginning may be considered as a type of endothelial tumor, and which, when it recurs after ablation, generalizes in the form of diffuse melanotic sarcoma. It seems legitimate then to conclude that the endothelial type is the common stock of the so-called connective tissue tumors, which differ from one another only as they deviate more or less from the primitive or fundamental form, or become more or less atypical.*

We may then deduce from these facts two principal laws, one formulated by Müller—*every tumor is constituted by a tissue analogous to the normal tissues;* the other, deduced from the researches of Virchow—*the elements of tumors are derived from the elements of the organism.*

There is yet much to be learned of the natural history of tumors, and not the least of the points still involved in obscurity is the cause of the appearance of neoplasms. Why does a fraction of tissue, isolating itself from the organism, all at once suddenly or gradually, the more often without apparent cause, develop and assume the proportions and character of a tumor? In some productions this question has been very satisfactorily answered; the studies of Ponfick on actinomycosis, of Koch on tubercle, of Bouchard, Klebs and Birch-Hirschfeld on glanders, lepra and syphilis, have permitted the separation from tumors proper of the specific products of certain maladies under the name of infectious tumors. These pathological products are connected by indisputable relationships, and

The following table defines and summarizes the ideas which have been presented:

Type, adenoma or papilloma.	*Type, pure endothelioma.*	*Type, metatypical endothelioma.*
1. Plexiform angioma (Waldeyer).	1. Angiosarcoma. Cylindroma (Waldeyer, Malassez).	1. Spindle-, or round-celled sarcoma; myeloid sarcoma (Robin, Malassez).
2. Lymphangioma.	2. Lymphangiosarcoma. Ganglionic endothelioma (Chambard, Gaucher). Lymphadenoma (Lancereaux).	2. Lymphosarcoma. Diffuse sarcoma of serous membranes and articulations.
3. Papillary epithelioma of serous membranes and cavities.	3. Endothelioma vulgaris of serous membranes (Robin). Angiolithic sarcoma. Melanotic endothelioma of the eye and skin.	3. Osteosarcoma. Myxosarcoma. Melanotic sarcoma.

*We consider in epithelial or endothelial tumors three essential types, differing (1) by the nature and morphology of the cellular elements, and (2) by the relations of these elements with the neighboring tissues. The type *adenoma* or *papilloma* is characterized by simple hyperplasia with conservation of the normal form and normal relations. The type *epithelioma* or *endothelioma* is limited to the conservation of the form and alteration of the relations. The type *carcinoma* or *sarcoma* is differentiated from the other two by the simultaneous modification of these two grand characteristics.

constitute a natural family, having an etiology almost identical and a common structure and destiny.

In the same way is evident the mechanical or inflammatory cause, leading to the formation of cysts by the retention in a cavity of a secretion which should normally be excreted.

Aside from these cases, the etiology of tumors is very obscure; the facts certainly show that they are neither contagious nor inoculable, and consequently possessed neither of a specific poison nor a parasite. Among the various explanations of the origin of tumors, the embryonic theory of Cohnheim is attractive by its simplicity and completeness. He holds that all tumors proper are due to some trouble or vice of development. At some period of embryonic life are produced certain involutions of the blastodermic layers, resulting in the formation of an isoluted cellular mass in the tissues, which remains quiescent and does not assume activity until a period at a greater or less distance from birth.

The various types of tumors and the differences in structure which they present are easily explained by the consideration of the period of embryonic life at which the involution occurred. According as this was early or late, the elements of the included part are more or less differentiated; when, under an influence still unknown, life is awakened in these dormant elements, the evolution continues at the precise point where it was arrested, and produces either an embryonic tumor, if the arrest has been early, or a tumor formed of adult tissues (fibroma, lipoma, myoma or neuroma) if it has been late. The laws of Müller and Virchow are logical corollaries of this pathogenic theory, since, directly derived from the normal elements of the organism, tumors can produce only the types proper to the cells or tissues which have given birth to them.

Thus constituted, living their own life more or less independent of the rest of the economy, since they have no relation with the nervous system, the regulator of nutrition, these morbid products increase, multiply and reproduce without limit, with a facility and rapidity the greater as the type under which they are evolved approaches nearer the early phases of embryonic life. They employ for their nutrition, like veritable parasites, the materials accumulated from the tissues in the midst of which they are engrafted, determining a sort of cachexia of varying character and, if nothing obstructs their progress, producing death by marasmus, generalization or infection.

The embryonic theory permits the explanation of certain points in the history of neoplasms, among which are hereditary transmission, the influence of traumatism upon the development of tumors, and their appearance preferably at puberty and at the menopause or the onset of old age; it is admitted that at these two periods of life congestions appear, capable, like traumatism, of exciting the development of these embryonic masses, arrested in their evolution, and which would otherwise remain quiescent and sterile.

While it is impracticable here to recount all the arguments in favor of this theory, we may remark that dermoid cysts of the ovary and testicle, the congenital origin of which is indisputable, form a class of congenital productions which remain latent for years and may suddenly, preferably at puberty and the menopause, develop rapidly and unceasingly and without other limit than the life of the patient.

However, a still stronger proof is apparent from the experiments of Masse, who grafted into the peritoneum of adult dogs the debris of the tissue of an embryo of the same species, and saw veritable dermoid cysts develop at the point of inclusion. Messrs. Monod and Arthraud consider this demonstration conclusive and an *a posteriori* verification of the hypothesis of Cohnheim that *all true tumors are the result of a vice of embryonic development.*

It should be remarked that they have added the word "true" to the law of Cohnheim, and that by *a true tumor* is meant *a new organ which develops at some period of post-embryonic life and which follows in its evolution a course analogous to that which marks its growth at the epoch of primitive organization.* This definition creates in the category of new formations two classes which are often confounded clinically under the general term, tumors. The first class, which alone is considered in this paper, comprises the *true tumors;* in the second class are ranged all the *neoplasms of inflammatory or trophic origin*, which may sometimes present a morphology identical with that of true tumors, but which always differ essentially from them in their progress, duration and evolution. The infectious tumors, belonging to this class, have already been noticed; to this same family may be assigned the hyperplasias of trophic or diathetic origin. Tumors of the sarcomatous family and the granulations of fresh inflammation are identical in structure, but the history shows the former to be tumors and the latter pseudo-neoplasms. Illustrations of this condition may be multiplied, and in many instances it is difficult to exactly locate particular cases.

However, taking the laws of Müller and Cohnheim as a basis and guide, it is possible, by an analysis of the facts now known, to establish by synthesis a really scientific classification of tumors. The following table presents such a classification applied to tumors in general, a subject which Messrs. Monod and Arthraud propose to develop more fully at some future time:

A.—TRUE TUMORS.

CLASS I.—*Teratoma*—Tumors developed from the three layers of the blastoderm.			Fœtal inclusions. Dermoid cysts.
CLASS II.—*Mixed Tumors* — Tumors developed from two layers or from the various elements of one.	Ento- or ectomesodermic tumors.	Mixed epithelioma.	Chondromatous (chondrocarcinoma). Myomatous. Myxomatous. Sarcomatous (cystosarcoma). Lipomatous.
	Mixed mesodermic tumors.	Mixed endothelioma.	Chrondromatous (chondrosarcoma. Myxomatous (myxosarcoma). Myomatous (myosarcoma). Lipomatous.

CLASS III.—*Pure Tumors*—Tumors developed from a single layer of the blastoderm.	Ectodermic tumors.	Epithelial type.	Adenoma or papilloma.	Glandular ademona.
				Corneous papilloma.
			Typical epithelioma.	Pavement epithelioma.
				Lobular ——
				Pearly ——
				Papillary ——
				Tubular ——
				Glandular ——
				Keratinized ——
			Metatypical epithelioma.	Encephaloid carcinoma.
				Scirrhous ——
				Hæmatoid ——
				Reticulated ——
		Adult or differentiated type.	Neuroma.	Myelinic neuroma.
				Amyelinic neuroma.
	Entodermic tumors.	Epithelial type.	Adenoma or papilloma.	Adenoma or papilloma of the intestine and its annexes.
			Typical epithelioma.	Cylindrical epithelioma of the intestine, the stomach, the liver, the kidney, the testicle, and the ovary.
			Metatypical epithelioma.	Mucoid epithelioma.
				Carcinoma of the same organs.
		Endothelial type.	Angioma or papilloma.	Angioma or plexiform lymphangioma.
				Papilloma of serous membranes.
	Mesodermic tumors.		Typical endothelioma.	Angiolithic sarcoma.
				Angiosarcoma.
				Myeloplaxic sarcoma.
				Lymphangio-sarcoma.
				Lymphadenoma.
				Cylindroma.
				Endothelioma.
				Endothelial sarcoma.
				Melanotic sarcoma of the eye.
			Metatypical endothelioma.	Lymphosarcoma.
				Diffuse melanotic sarcoma.
				Myxosarcoma.
				Glioma.
		Adult or differentiated type.	Connective tissue type.	Chondroma.
				Lipoma.
				Myxoma.
				Fibroma.
			Muscular type.	Rhabdomyoma.
				Leiomyoma.

B.—INFLAMMATORY OR TROPHIC NEOPLASMS.

CLASS I.—*Connective tissue and muscular neoplasms.*	Pure connective tissue type.	Embryonic.		Wound-granulations.
				Embryonic infectious tumors (syphilis, tubercle, etc.).
		Adult.	Chondroma Myxoma.	Ecchondrosis.
				Pseudo-lipoma.
				Fibrous infectious tumors.
				Gouty and rheumatic nodes.
			Fibroma.	Laminated fibroma.
				Keloid.
				Amputation neuroma.
			Lipoma.	Lipomatous diathesis.
				Accidental lipoma.
				Trophic lipoma.
			Osteoma.	Plates of arachnitis.
				Ossified plates of the peritoneum and pericardium.
				Syphilitic osteoma.
				Exostoses.
	Muscular type.		Myoma.	Uterine leiomyoma (uterine fibro-myoma).
				Muscular hypertrophy.
CLASS II.—*Epithelial neoplasms.*	Epithelial type.			Papilloma, condyloma, wart, etc.
				Glandular hypertrophy.
				Retention cysts.
				Goitre, ranula.
	Endothelial type.			Vascular ectasia.
				Anæmic lymphoma.

Now, having indicated in a general way the various phases through which the history of the origin of tumors has passed, and what more precise and satisfactory ideas we have acquired at the present day, it remains for us to apply these to tumors of the testicle. The study will properly begin with the consideration of the more complex tumors, since the theoretical plan for our guidance being provided, an examination of the clearly congenital types will assist us in

comprehending the true nature of tumors of more simple structure but of less evident etiology. In this particular case, however, beginning with complex and ending with pure tumors, is really proceeding from the simple to the compound; it is, in fact, passing from the admitted and demonstrated, by an insensible transition the steps of which will be noted, to a conclusion which might *a priori* have appeared untenable—the identity of origin of all true tumors of the testicle.

Complex tumors of the testicle are of two classes:

1. Various congenital cystic formations, of which inclusions affecting the testicle and scrotum are the highest type, and dermoid cysts the most rudimentary form.

2. Mixed tumors, with or without cystic formation, composed of two or three fundamental tissues, more or less blended in the same neoplastic mass.

It is purposed to demonstrate a common origin of these two classes of tumors in the testicle, and then to show how the third class of pure tumors may itself be allied to the others.

I. Fœtal Inclusions. Dermoid Cysts. Teratomas.—The complicated teratological productions known as fœtal inclusions are especially found developed in the testicle, and the more often in relation with the gland, but not from it. They should be allied with dermoid cysts; in fact, upon passing in review the published cases, it will be observed that in these inclusions are the more often found only complex masses formed of various tissues presenting a rude outline of organization, but ordinarily having but slight resemblance to fœtal debris. The tumor is almost always reduced to a cyst more or less compound, containing hairs, fleshy masses and ossified parts, sometimes real bone.

Between these tumors and dermoid cysts, then, there is but a difference of degree, and to show this analogy it is proposed to unite them in a class under the name of teratoma, a name excellently suggesting the relationship with the teratological cases to which they are so nearly related.

The embryonic origin of these tumors is almost universally admitted, and their pathogeny, following the views previously advanced, should be referred to a vice of development of the blastodermic layers, to the isolation within tissues in the process of formation, of a small mass detached from these layers and possibly composed of many elements. These embryonic masses pursue their evolution with a rudimentary organization, sometimes forming organs and fragments of organs, but never constituting a complete organic system.

The very great complexity of these tumors would seem to indicate that the more often the three blastodermic layers participate in their formation. This may readily occur if they originate in the first days of intra-uterine life at the moment of the formation of the genital organism, *i. e.*, at an epoch when there can be observed in the caudal region of the embryo an almost physiological fusion of the three layers. This circumstance is doubtless eminently favorable to division and separation of an isolated fragment composed of elements derived from each of them. Thus in these tumors, when completely developed, may be found either connective and muscular tissues, if the middle layer is included in the invagination; or cartilage and bone, if the provertebræ have been involved in the inclusion; or epithelial debris of a cylindrical or pave-type, according as the endoderm or ectoderm is concerned.

From this standpoint it can be seen that there is no real difference between inclusions and dermoid cysts; in fact, it is possible to find, by minute analysis of cases, intermediate types from the tumor by inclusion—the contents of which resemble a veritable fœtus—to the common dermoid cyst, consisting of a dermo-epidermic wall circumscribing a cavity with pilo-sebaceous contents. Moreover, in the more simple dermoid tumors, a complete examination will almost always discover some more complex part resembling the structure of tumors by inclusion.

II. Mixed Tumors.—In a similar way, it is possible to discover between teratomas and mixed tumors a relationship analogous to that between dermoid cysts and inclusions. Mixed tumors of the seminal glands are productions complicated in structure, which cannot for this reason be ranged in any of the grand classes of neoplasms admitted by pathologists; in them are found the most various tissues; epithelial cells arranged as in true carcinoma, embryonic elements analogous to those of carcinoma, cartilaginous tissues as in enchondroma, cysts of variable epithelial contents and covering, sometimes veritable osseous tissue, striated and non-striated fibres, and even nervous tissue.

The existence in dermoid cysts of a cystic cavity ordinarily monolocular and considerable, is not sufficient to completely differentiate them. This is due simply to some accessory circumstance as yet unknown, but which does not modify the intrinsic nature of the tumor. The almost necessary presence of pavement epithelium and its derivatives in dermoid cysts and inclusions, while it is almost constantly absent in mixed tumors, constitutes a differential characteristic which would seem to be very important; it is impossible, however, to found the establishment of two entirely distinct categories of tumors upon this fact alone. It is evident that there are no essential differences between the structure of mixed tumors and that of teratomas; there are in both the same anatomical elements more or less varied and blended.

If then there really exists a close relationship between mixed tumors and teratomas, the natural conclusion would be that their origin is identical. How, moreover, can the union in the same mass, of elements so varied as those composing mixed tumors of the testicle, be explained without going back to the embryonic period where these elements originated?

When trouble supervenes in normal evolution, and this at a point where, as has just been mentioned, the blastodermic layers are almost blended, and when this point of fusion is at the same time near that where the first vestige of the seminal gland appears, it is easy to understand that an isolated cellular mass detached from the embryonic tissue could be buried in the gland itself or in its immediate neighborhood, and later become the point of departure of a mixed tumor. It is probable, however, that this separation occurs at a little earlier period than that of teratoma, and at a time when there is more distinction between the blastodermic layers, for the study of these tumors in the great majority of cases shows the elements of but two of these layers, or even but one of them.

When the inclusion, and this is the most frequent case, affects the different parts of the middle layer, or the parts derived but separated from the internal layer, the tumors developed are mixed enchondromas, sarcomas with cartilagin-

ous kernels, mixed carcinomas and myomas of heterogeneous structure, so frequent in the seminal gland. The inclusion of a Pflüger's tube will give rise to an epithelial neoplasm, but the tumor will rarely be pure, some cells either from the provertebræ or the lateral plates in the form of cartilaginous nuclei, or some masses of striated or non-striated muscular fibre in process of development, are found here. In the same way sarcomas developed from endothelial elements might contain pearls of cartilage, muscular fibres, and typical and atypical epithelial productions. And it is evident that the theory of Cohnheim permits us to understand the formation of as many varieties as there are possible combinations between the different elements of the middle layer and the neighboring layers.

A review of the literature of tumors of the testicle shows that almost all of them are mixed. True chrondroma is the exception, pure myoma is doubtful, pure sarcoma and carcinoma are far from common, and the most frequently the various tissues combine to form a variety of tumors, the existence of which our theory enables us to foresee.

III. Pure Tumors.—The pure tumors form the third and last class of the neoplasms which we have undertaken to classify. Two groups can be distinguished *a priori:* A. Those developed from the elements of the middle layer; B. Those developed from the internal layer and its derivatives.

A.—The tumors, the origin of which may be referred to the middle layer, are chondroma, myxoma, embryonic sarcoma, angioma, lymphangioma and myoma. All have been found in the seminal gland, but they are relatively rare there, at least without a mixture of heterogeneous parts. It could even be held that certain of them, considered as practically pure tumors because the foreign elements associated with the fundamental substances of the neoplasm are so limited in quantity that they often pass unperceived, should really be called mixed tumors, because of the presence of those elements.

It has already been noticed that pure chondroma of the testicle is exceptional, if indeed any cases are on record. Tumors of the muscular type, rhabdomyoma, leiomyoma, fibromyoma, are perhaps still more so. Sarcomatous tumors are much more frequent, for giant-celled sarcoma, adult angioma, and spindle- and round-celled sarcoma with all their varieties, have been observed there.

All these tumors arise from the middle layer, and their embryonic origin can be established by a reasoning analogous to that employed in connection with mixed tumors. It was shown that an evident analogy existed between teratoma and mixed tumor, and that intermediate types connecting them could be found, so that to the latter may be applied the hypothesis of embryonic origin, which is indisputable with the former. Now, between pure and mixed tumor, the stages of transition are still more numerous; the fact alone that it is sometimes difficult to distinguish them from one another would seem to demonstrate this relation *a priori*. It would then be proper to suppose from this fact alone that the origin of these classes, so closely connected, is the same.

But still other evidences of the embryonic origin of this group exist. Chondroma, myxoma, myoma, and in particular sarcoma, often present a very clear embryonic structure. There may be cartilaginous kernels formed of fœtal cartilage; certain muscular tumors contain striated fibres in course of development;

the giant cells observed in certain sarcomas are simply embryonic vaso-formative cells.

The hypothesis that, under the influence of inflammation and a diathesis, the tissues resume the embryonic type, is certainly less rational than the theory of Cohnheim, that buried and quiescent elements have resumed their interrupted evolution and pursue their development from the point where it was arrested. They present successively all the phases of normal growth, and microscopical examination of a tumor finds it at one of the periods of this organization.

In this way the distinct differences clinically separating the various productions enumerated can be explained. The nearer the tissues contained in a neoplasm approach the adult state, *i. e.*, the later the inclusion has occurred, the more benign is the clinical course. This is true of adult fibroma, lipoma and angioma; but in the contrary condition the progress of the growth is that of a malignant tumor, sarcoma, lymphadenoma, etc.

The hypothesis of Cohnheim, then, expresses the truth concerning mesodermic tumors as well as those previously studied.

B.—The entodermic tumors, developed from the internal blastodermic layer, are the epithelial tumors proper. They and mixed tumors are the most frequent in the testicle.

Epithelial tumors, by reason of their structure and evolution, present two forms; the typical form, resembling more or less in disposition normal glandular tissue; and the metatypical form, or carcinoma. Both of these forms may be shown to exist in the testicle.

The "typical" form of epithelioma of the testicle is represented in cystic disease of that organ. Malassez has demonstrated the complete analogy between cystic disease of the testicle and cystic degeneration of the ovary; both are entitled, by reason of the disposition of the epithelium which lines the cavity of the tumor, to the name given them by Malassez, mucoid epithelioma. Now mucoid epithelioma of the ovary being considered as a typical epithelioma, it is clear that cystic disease of the testicle belongs to the same category. These two forms of degeneration of the male and female glands evidently correspond to typical glandular epithelioma of the intestinal canal.

The "atypical" epithelial tumors of the testicle assume various forms, some of which greatly resemble cystic disease. The majority of the cases formerly described as cystic sarcoma, and almost all the cysto-adenomas of certain authors, were but more advanced phases of the more atypical modalities of cystic disease.

The true "metatypical" epithelioma (carcinoma) is more common. It is more often a very diffuse tumor, absolutely atypical throughout, with a small amount of stroma, and subject to mucoid and colloid degenerations, to partial gangrene, and to multiple hæmorrhage. This form corresponds to the encephaloid tumor of old authors.

The scirrhous variety, with dense stroma and few cellular elements, is more rare. It is often accompanied by the formation of epidermic pearls resulting from the involution of canalicular epithelium.

In this class of tumors, the most varied appearances may be observed, either from the relatively varying amount of stroma and cells, or from secondary

degenerations produced in the neoplastic tissue. The stroma is sometimes clearly reticulated (reticulated carcinoma). In other cases, melanotic infiltration of a greater or less part of the mass might cause it to be mistaken for a true melanotic carcinoma, the existence of which in the testicle is very doubtful. Degeneration causes other conditions. The destruction of a certain amount of the contents and dilatation of the capillaries of the stroma produces bloody lacunæ, and the tumor becomes essentially vascular, forming hæmatoid carcinoma of the testicle. The neoplasm may undergo a caseous and mucoid degeneration, altering its aspect to such an extent that anatomical diagnosis becomes almost impossible. But these secondary variations are without importance from the standpoint of the classification of the tumors, for it is almost always possible to refer back to the original type, and to range them in their proper place in the list of epithelial tumors.

By arguments similar to those employed in connection with mesodermic tumors, the embryonic origin of this group can be shown, but it is not necessary to repeat them. It will be sufficient to remark that it is susceptible of ample demonstration.

Then, since complex tumors of the testicle clearly have a congenital origin, and since no absolutely differential characteristics between complex and pure tumors can be found, we are forced to the conclusion that all true tumors of the testicle are products referable to a vice of embryonic development. Relying upon this fact, then, Messrs. Monod and Arthraud have deduced the following rational classification of neoplasms of the genital gland.

- **Class I.—*Teratomas*—Tumors developed from the three layers of the blastoderm.**
  - Fœtal inclusion.
  - Dermoid cysts.
- **Class II.—*Mixed Tumors*—Tumors developed from two layers or from elements of one only.**
  - Endo- or ecto-mesodermic tumors.
    - Typical or atypical epithelioma.
      - Sarcomatous.
      - Myxomatous.
      - Chondromatous.
      - Myomatous.
      - Lipomatous.
  - Mesodermic tumors.
    - Typical or atypical endothelioma.
      - Chondromatous.
      - Myomatous.
      - Myxomatous.
      - Lipomatous.
- **Class III.—*Pure Tumors.***
  - 1st group (B). Tumor developed from the internal layer or its derivatives (endodermic tumors).
    - Adenoma. Typical epithelioma.
      - Benign form of cystic disease.
      - Typical mucoid epithelioma.
      - Cystic sarcoma of the old authors.
      - Reticulated carcinoma.
    - Metatypical epithelioma.
      - Colloid —
      - Hæmatoid —
      - Melanotic —
  - 2d group (A). Tumors developed from the middle layer (mesodermic tumors).
    - Endothelial type.
      - Angioma.
        - Angioma and plexiform angioma.
      - Typical endothelioma.
        - Embryonic angioma or myeoplaxic sarcoma.
        - Lymphangio-sarcoma.
        - Lymphadenoma.
        - Lymphoma.
      - Metatypical endothelioma (sarcoma).
        - Embryonic or spindle-celled sarcoma.
        - Lymphosarcoma.
        - Metatypical nuclear endothelioma.
    - Adult or differentiated type.
      - Connective tumors.
        - Chondroma.
        - Myxoma.
        - Lipoma.
        - Fibroma.
      - Muscular tumors.
        - Rhabdomyoma.
        - Leiomyoma.

This classification has not only the merit of grouping in a methodical manner the cases known at present, but it also has the immense advantage of foreseeing the existence of forms not yet described, and permitting us to connect to one another by a rational classification the scattered cases, the difficult interpretation of which has frequently caused their value to be misunderstood. It is far from being in accord with received ideas, but it is believed that later study of specimens, made in the light of the theoretical ideas advanced, will justify the general arrangement.

II. MATERIA MEDICA AND THERAPEUTICS.

Is Salicylic Acid in Beer Injurious to Health?

The question whether the continuous use of salicylic acid is injurious or not was investigated by KOLBE, who took for nine months at least 15 grains of salicylic acid daily in his drink without the least symptom of injury. Dr. Lehmann (*Arch. f. Hygiene*, Band V., Heft 4, 1886) has further experimented on two Munich laborers, one of whom, aged 49, in ninety-one days took in his beer 578 grains altogether. The other, aged 37, consumed in the same time over 700 grains. Neither of these suffered in the least. Now this amount is immensely in excess of what could possibly have been put in the exported beer alleged to have contained salicylic acid. It should be further said that the best brewers repudiate both the allegation of using salicylic acid and the necessity of using it.—*Med. Chronicle*, October, 1887.

Iodol.

SEIFERT, in the *Münch. med. Woch.*, January 25, 1887, advocates the insufflation of iodol several times daily in tubercular ulcerations of the larynx. From the cases he records, however, it does not appear that the use of this drug leads to more than temporary improvement of the local condition. He states that he succeeded several times in healing up tubercular ulcerations of the larynx, but his cases eventually died from advance of the lung disease. He has also employed iodol successfully in syphilitic ulcerations of the nasal cavity. To a case of struma hyperplastica he gave 7 grains of iodol daily in pills; on the fourth day iodine was found in the urine. He himself took a dose of 7 grains, and produced no digestive troubles and no symptoms of iodine intoxication, but he found iodine present in the urine in 12 hours, and it could be detected there for 3 days. Iodol, therefore, he says, is only slowly absorbed.—*Med. Chronicle*, May, 1887.

Lactic Acid in Chronic Purulent Inflammation of the Middle Ear.

LANGE, in the *Monatschrift. f. Ohrenhk*, No. 3, 1887, recommends lactic acid in the above named affection. He commences, as a rule, with a fifteen per cent. solution, which is dropped in once daily, or which is applied with cotton pledgets on the diseased mucous membrane. After this treatment has been continued for some days without having caused reactive symptoms, Lange makes use of stronger solutions in those cases in which the mucous membrane is considerably thickened or granulating; he, however, rarely uses a stronger solution than 30 per cent. The first symptoms which are noticed after using the lactic acid are decreased secretion and early disappearance of the frequently existing fetor.

Small granulations usually get covered with a white, necrosed scab, and then shrink rapidly. The acid is apparently ineffectual against coarser vegetations. Neither does it seem applicable for acute ear inflammations. More concentrated solutions cause pain, but the latter usually passes off rapidly. Steel instruments are attacked by the lactic acid.—*Med. Chronicle*, October, 1887.

Inhalation of Oxygen in Anæmia.

According to the *Centralbl. f. klin. Med.*, 1887, No. 17, the favorable report of Kirnberger (1885) induced STICKER (*Münch. med. Woch.*, 1886, No. 13) to treat a case of anæmia with inhalation of oxygen. The patient had suffered for three years from extreme splenic leucæmia; the white and red corpuscles were equal in number. The treatment, inhalations of 50–60 litres of oxygen per day (at first conjoined with arsenic internally) lasted for eight months. Sticker obtained very rapid and most remarkable improvement, which ceased as soon as the inhalations were discontinued. The body weight of the patient increased by seven kilograms; the excretion of urea and uric acid, which before treatment was excessive, was diminished; the number of the red blood corpuscles at the height of the amelioration was normal, that of the white ones slightly above normal. The treatment was resumed after several weeks' pause. Purulent bronchial catarrh, with "eosinophile" lymph corpuscles, however, set in, together with retinal hemorrhages, epistaxis, and deafness; and at last the patient died. At the post mortem no fatty degenerations were found, and in the spleen (4,600 g.) and liver (5,520 g.) no thrombotic changes. Sticker thinks that chlorine, as an impurity of the oxygen, might have contributed to the success of the treatment.—*Med. Chronicle*, October, 1887.

Treatment of Whooping-Cough with Antipyrin.

SONNENBERG, in the *Deutsche med. Woch.*, April 7, 1887, recommends antipyrin as the best remedy in whooping-cough. He has used it in seventy cases, and asserts that it surpasses in efficacy and utility all other remedies. He gives one-seventh of a grain to very young children, and gradually increases the dose according to the age of the child. To adults he gives 15 grains. The medicine is administered three times daily, and sometimes once during the night. Children take it readily when dissolved in a little water and raspberry juice. The remedy should be continued throughout the attack, the cessation of it being accompanied by exacerbation of the cough. The average duration of cases thus treated is three to five weeks, and it rarely happens that more than six or seven paroxysms occur during twenty-four hours. Under antipyrin the appetite and nutrition was found to improve. When Sonnenberg commenced this treatment at a late stage of this disease, he found that the paroxysms were at once reduced in violence, and that the expectoration was rendered more easy. In a few cases the good effects of antipyrin were not noticed until a few days after its use had been commenced. Collapse was never noticed. Five out of seventy cases treated with antipyrin had complications; two suffered from pneumonia, and one of these died. The hygienic condition of the patient should, of course, be attended to, but Sonnenberg says that though in the majority of his cases this was not possible, the curative influence of the drug was very definite.—*Med. Chronicle*, May, 1887

A New Vermifuge.

Dr. M. Martinet writes to *Les Nouveaux Remèdes* for July, 1887, attributing vermicidal properties to the leaves of the *Sida Floribunda.* It appears that for the discovery of this substance M. Martinet was indebted to the instinct of his dog, which, after having been sick for a number of days, himself sought out and devoured some leaves of this plant, and a few hours later was relieved at the same time of his sickness and a large number of intestinal worms. The plant is said to be very common in the neighborhood of Lima, and is a Malva of the genus Sida, and is designated under the name of *Sida Floribunda.* The mucilage, which is so abundant in the different species of Malvaceæ, is likewise present in this plant, but no substance can be discovered on chemical analysis to which its anthelmintic properties could be attributed. Microscopic examination, however, shows that all the leaves of this plant are covered with extremely minute resisting spines, and the vermicidal properties are, if present at all, without doubt to be attributed to the mechanical action of the plant. Their smallness enables them to escape destruction in mastication, and their structure, being composed almost entirely of cellulose, protects them from digestion, and, reaching the small intestine, they act as a mechanical vermifuge, in the same manner as kamala, which likewise should be included among the group of mechanical vermifuges—*Therapeutic Gazette*, September, 1887.

The Tonic and Alterative Properties of Iodide of Iron.

Iodide of iron, according to Dr. Delmis (*Progrès méd*, 1887, May 7), belongs to those preparations of iron which possess the best "toni-analeptic" properties, combining the strengthening iron and the alterative iodine effects. Its efficacy is seen in chlorosis and anæmia, but in other diseased conditions, too, it is of the highest value—*e. g.*. in tuberculosis, scrofulosis, and syphilis. Because iodide of iron is easily soluble, it soon passes into the blood, where it is rapidly split up and eliminated. In the urine the iodine appears quickly as sodium iodide; the iron, as iron oxide, is excreted more slowly. It differs from other iron preparations in that it is excreted as iodide of iron by the saliva, the milk, the sweat, and the bronchial mucus. Claude Bernard was the first to demonstrate this property, and that is the reason it is given by so many physicians in tuberculosis and furunculosis. In the *Deutsche med. Woch.*, August 11, 1887, a case is recorded illustrative of Dr. Delmis's assertion. A young man, syphilitic, suffered repeatedly from boils in the neck. He was anæmic, became weak, and lost working power. After he had used iodide of iron for some months he lost his disposition to boils; his color improved, his weight increased, his pleasure in life and in work returned. Iodide of iron is, as is well known, a green powder; it contains only four molecules of water; it is decomposed by moist air, and in that condition is liable to cause gastro-intestinal troubles. Therefore it is necessary always to order the preparation quite newly prepared and pure. Iodide of iron ought not to be administered in powder or pill—the best form is in capsules or with syrup. In scrofulous children this drug is of greater utility than cod-liver oil, and in hysterical and neurasthenic patients its effects are highly beneficial.—*Med. Chronicle*, October, 1887.

Nitroglycerin in Diseases of the Heart and Kidneys.

HOLST has recorded in the *St. Petersburger med. Woch.*, Nos. 33 and 34, the results of his experience of the use of nitroglycerin in heart and kidney diseases. Nitroglycerin, he says, is capable of powerfully strengthening the innervation of the heart. One can rely on this effect with security only when there is no organic disease of the heart or great vessels; where there is degeneration of the heart or great vessels, *e. g.*, in old valve diseases, the remedy fails. In all cases of cardiac weakness in which the heart-muscle and the valves were sound, the beneficial effect was prompt and unfailing. Nitroglycerin is, therefore, likely to be of great service where there is imminent danger to life from cardiac weakness, *e. g.*, in typhus and in pneumonia. Nitro-glycerin was found useful by Holst, as by other observers, in angina pectoris. As regards its value in kidney disease, a surprising increase of urine flow was observed in several cases, and in one case a rapid disappearance of uræmic symptoms followed the use of the remedy; these effects must be regarded as secondary, and dependent on regulation of the activity of the heart. In all the cases where dropsical accumulations disappeared under the use of nitroglycerin, there was cardiac weakness. The chief difficulties in using this drug are its poisonous properties, and the inequality of the preparations and of the individual susceptibility to the drug. The best preparation to use is a 1 per cent. solution, three drops being administered daily. If this dose proves too weak, it should be increased drop by drop. Six drops was the maximum dose employed, and the state of the pulse was kept under constant observation.—*Med. Chronicle*, September, 1887.

Treatment of Diphtheria and Croup by Oil of Turpentine.

DR. KAPPERGER, of Darmstadt, records in the *Centralb. f. kl. Med.*, No. 26, 1887, a case of diphtheria treated by the above remedy. The patient was a boy, aged eight years. His illness commenced with very painful angina, with high fever and great enlargement of the tonsils. As no improvement was observed after three days, Kapperger made some deep scarifications into the right tonsil; this, however, afforded no relief. On the other hand, distinct membranes became developed; they gradually extended over both tonsils, the soft palate, and uvula. Usual remedies, quinine, ice, pot. chlor., produced no benefit. The only thing apparently doing any good were insufflations of powdered charcoal and alum (15 to 5 parts), which prevented fetid decomposition in the mouth, and its disastrous consequences on the general condition. On the fourteenth day of the illness, however, the patient became suddenly much worse, the pulse was very rapid and small, the face assumed the physiognomy characteristic of acute pyæmic blood-poisoning. Kapperger is not certain whether stenosis of the larynx was developing, as the superficial breathing might well be due to the great weakness. He continues thus: "In this special case I considered myself justified in trying a means I had accidentally heard praised, but of which I had no experience whatever. I gave a teaspoonful of ol. terebinth. rect., followed by a tablespoonful of Madeira. The next morning the patient greeted me with the exclamation, 'I am quite well!' After thirty hours the patient had a relapse of this very threatening condition. The same drug was again given, and the result was most successful, being immediately followed by rapid convalescence." No by-effects, as skin

eruptions, were observed by Kapperger, who concludes by asking whether oil of turpentine might not be destined to play an important part in the treatment of septic-pyæmic conditions.—*Med. Chronicle*, August, 1887.

Accidental Effects of Antipyrin.

GUTTMANN, *Therap. Monatshefte.*, Jan. 6, 1887), reports the following: A patient with acute articular rheumatism who had for two days taken antipyrin in doses of 30 grs. daily without bad results, was seized, a few minutes after taking 15 grs. on the 3d day, with a feeling of heat, dyspnœa and severe palpitation. The face was cyanosed, pulse and respiration very frequent. Stimulants and ice to the præcordia caused a gradual cessation of the symptoms in half an hour. Later, during a relapse, the antipyrin caused no unpleasant effects.

In another case, a delicate girl 25 years old received a dose of 15 grs. for the relief of nervous headache. Five minutes afterward there developed a feeling of warmth, burning over the whole body, a momentary urticaria of the face, extremely severe palpitation of the heart, general excitation and amaurosis lasting one minute. An hour later the face was greatly swollen, forearms and hands were œdematous. During the following hours there was a continuation of the symptoms, with the addition of vomiting; the pulse was 130. The clear yellow urine contained traces of albumin and 5 per cent. of glucose. Next day the pulse became less frequent, the swelling disappeared, and on the fourth day the patient was well but complained of general weakness.

Guttmann says that such idiosyncrasies with respect to antipyrin must be extremely rare, as the cases cited are the only ones he has seen, and his experience with the drug may be estimated from the fact that, in the hospital of which he is the director, about thirty-one pounds of antipyrin have been used since the beginning of 1884.

Bernoulli (*Schweiz. Corr. Bl.*, xvii., 12, 1887), reports a case of contrary effect from antipyrin similar to one described by Laache (*Schmidt's Jahrb.*, ccxi., p. 250). In Bernoulli's case, a woman with subacute articular rheumatism, without fever, bore the drug well at first. Afterwards even small doses were followed by a high and rapid rise of temperature, with chill, vomiting, pain in breast and abdomen, turgescence of face, injected conjunctivæ and the appearance of an exanthem similar to that of scarlet fever. Salicylic acid was just as badly received, but antifebrin and salol were well borne. The fact that the threatening symptoms appeared within three to four minutes after taking, proves an extraordinarily rapid absorption. *Schmidt's Jahrb.*, No. 215.

Antifebrin in Ataxia.

FISCHER (*Münch. med. Wochenschr.*, xxxiv, 23, 1887) used antifebrin in 10 cases of ataxia with lancinating pains, and came to the conclusion that it is almost a specific in such cases, though its action is not uniform, even in the same patient. The pains of the gastric and intestinal crises were lessened and the crises shortened. Fischer has never seen unpleasant effects from the use of the remedy. His dose was from eight to twelve grains. In various forms of headache he has used the drug with success. Demieville (*Rev. méd. de la Suisse*, tom. vii. 6, p. 305, 1887) has also had good results from antifebrin which he used in large doses,

twelve to sixteen grains several times daily. The patients were not troubled with cyanosis, evidently because the methæmoglobin produced by the action of the antifebrin was rapidly converted into oxyhæmoglobin again. There were no chills. At times slight dizziness came on. A few patients had temporary disturbances of digestion. Demieville insists that when doses of eight grains have no effect, twelve to sixteen grains must be given. After a few of these large doses the smaller ones appear to be efficacious. Demieville has observed both analgesic and hypnotic effects from antifebrin. He has used it in more than 80 cases, with good results in sciatica (11 cases), lumbago (8 cases), intercostal neuralgia (7 cases), trifacial neuralgia (8 cases), headache (11 cases), pains of unknown source in arm and hand (3 cases), dysmenorrhœa (7 cases), in the pains of senile gangrene, and in insomnia from them in two cases, in osteitis, carcinoma uteri, cholelithiasis, chronic urticaria (each one case). In epilepsy (6 cases) the attacks appeared to become less violent.

Faust (*Deutsche med. Wochenschr.*, xiii. 26, 1887) has used antifebrin with success in headache in doses of eight to fifteen grains.

Lang (*Wien. med. Presse*, xxviii. 22, 1887) has used antifebrin, and comes to conclusions not materially different from those previously published. Compared with quinia and antipyrin its antipyretic action is weak and very temporary. In all his cases the sedative action on the heart was very marked. This important effect Lang thinks due to an irritation of the vagus center, especially as the respiration is affected at the same time. He concludes, therefore, that the indication for antifebrin is more evident in cases of tachycardia, angina pectoris, exophthalmic goitre, etc., than where an antipyretic action is desired.—*Schmidt's Jahrb.*, 215.

A Case of Poisoning from Coniine.

Schulz reports in the *Deutsche medizinische Wochenschrift*, for June 9, 1887, the following case:

It is the custom of Professor Schulz during his lectures on materia medica to circulate among his hearers samples of the drug lectured upon for inspection. The alkaloid coniine was so arranged that the characteristic odor was plainly perceptible to those who examined it. Although this custom had been observed for some time, no accident had occurred. On one occasion, however, after coniine had been exhibited, the lecturer was informed that a student had been poisoned by inhaling the exhalation of the drug. He proceeded at once to his lodging, and found the case as follows:

"The patient, twenty-two years old, and strong and healthy, had, on the day previous, smelled of the coniine repeatedly, as he had a nasal catarrh, which made it difficult for him to obtain the odor. He noticed, on going to his lodging after the lecture, that the odor seemed to be still present. He was taken with a progressive enfeeblement of his limbs; he could not keep his eyes open; had a painful sensation of burning about the conjunctivæ, and was finally compelled to lie down. The prostration increased, and power over the extremities was lost, although the sensorium was uninfluenced. Severe headache and strong pulsation in the temporal regions ensued. When found by an acquaintance and put to bed some two hours after the patient noticed the first symptoms, he was almost

speechless, the words being spoken very slowly and with great effort. After he was placed in bed a diffused sensation of heat was experienced, and those who were with him supposed fever to be present. This was followed by free perspiration and also profuse secretion of tears. The patient could not rest during the night. Confusion of ideas, images formed from surrounding objects, and utter failure of connected thought, were observed. On the following morning the patient's condition was ameliorated; headache and prostration continued, but were less severe. The slightest motion, however, occasioned a profuse perspiration. The nasal catarrh, which the patient had before he was poisoned, had disappeared."

When seen by Schulz, twenty-four hours after he was poisoned, the patient presented no abnormal appearance. He gave a clear account of all which had happened, but complained of headache. Pulse full and soft, 88; temperature 98.7°. When he changed his position in bed the perspiration appeared in profusion upon the head, buttocks, and extremities. Constipation and loss of appetite for food and tobacco were present. The following night a normal rest was obtained, and the patient speedily recovered without treatment.

In the literature of the subject Pöhlmann has described the headache and supra-orbital pain following the giving of conium. Schroff and his pupils observed the diaphoretic action of the drug, and endeavored to define the production and limits of this effect. The general symptoms, the paralysis of the muscles about the eyes, the failure of speech and effect upon the circulation, are typical of the action of the poison as described by Plato in his description of Socrates's death.

For a full account of cases of poisoning by this drug the reader is referred to Schulz's article on "Coniin" in Eulenberg's Encyclopædia.— *Therapeutic Gazette*, August, 1887.

The Physiological Effects of Cocaine.

The above is the title of an elaborate paper by Mosso, of Turin, published in the *Archiv für Experimentelle Pathologie und Pharmacologie*, Band 23, Heft 3 u. 4, which we abstract as follows:

His first experiments were made with frogs, to test the effect of the drug upon the nervous system of cold-blooded animals. He found that in large doses cocaine paralyzed the spinal cord, while the motor and sensory nerves, in their peripheral portions, were yet intact. The conducting power of the cord was in abeyance, and the reflexes, as well as the other functions of the nerve cells of the cord, were for the time abolished. Only in the last stages of poisoning by cocaine was increased irritability of the motor nerves observed. The lymphatic heart of the frog was of course paralyzed by the paralysis of the spinal cord. Regarding the general effect of cocaine upon warm-blooded animals, he observed that animals of the same kind differed greatly in their power to bear large doses of the drug. He found that in its effects upon the general nervous system, the convulsions which it caused were not exaggerated reflexes, because they did not depend upon external causes. They originated in the nerve centres from a temporary malnutrition, and spread through the muscles. It did not produce convulsions in cold-blooded animals. Death sometimes took place, with the symptoms of

tetanus; at other times, with a general paralysis, without especial convulsions. When the spinal cord was severed, it was found that the cord alone, without the aid of the brain or the medulla, could excite strong convulsions of the muscles of the extremities, which exactly resemble the convulsions which cocaine produced in animals. The increased excitability of the cord was also attended by a rise in temperature. It was found that cocaine increased the frequency of respiration, and this was due, not to increased carbonic acid gas in the blood and the need for oxygen, but to a purely nervous stimulation which the drug exercised upon the nervous centres. The insufflation of cocaine in powder into the lungs resulted in an increased frequency in breathing also, and the conclusion was reached that cocaine is a direct respiratory stimulant. In small doses cocaine stimulated and accelerated the action of the frog's heart, and this effect persisted for some time after the blood containing the drug had left the heart. In large doses the heart was arrested in systole. The frequency of the heart's action in warm-blooded animals was not affected by small doses of cocaine; moderate doses produced a great acceleration, which sometimes became as high as three times the normal rate. In cocaine spasms the heart-beat was of course modified by the spasm. Regarding the effect of cocaine upon the pneumogastric nerve, it was found that not only the frequency but the vigor of the heart's contraction was altered. The increased frequency of the heart-beat was not caused by paralysis of the pneumogastric, for the nerve was found sensitive to the electric current after the use of very large amounts of cocaine. The drug lessens the susceptibility of the pneumogas tric to electricity, but this effect does not persist, and disappears after even large doses if they are not renewed. The pneumogastric nerve does not lose its irritability, as shown by the fact that, after large doses have been given, the use of electricity on the nerve will influence respiration in its characteristic manner. Large doses of cocaine do not slow the heart's action. In its effect upon blood-pressure, doses of from $\frac{1}{6}$ to $\frac{1}{3}$ of a grain for each two pounds of body-weight increased blood-pressure in dogs; larger doses resulted in a lessening of blood-pressure. Great individual idiosyncrasies were observed. Cocaine retarded the fall in blood-pressure and lowering in body-heat, which usually follows severance of the spinal cord. In very large doses cocaine at first produced a lessening of blood-pressure; afterwards an increase. Cocaine was found to have a direct influence upon the blood-vessels. Experiments upon the circulation in extirpated organs of the body showed that in small doses, for example, $\frac{1}{100}$ per cent. of body-weight, it produced no marked effect upon the blood-vessels. Doses of $\frac{1}{100}$ per cent., $\frac{1}{100}$ per cent., and $\frac{1}{10}$ per cent. produced a well-marked paralysis of the blood-vessels of the extirpated organs. Upon the function of respiration it was found that cocaine, whether introduced into the lungs or the veins of an animal, produced a preliminary lessening in the frequency of breathing, followed by a persistent and characteristic increase in the movements of respiration. Large doses produced a temporary paralysis, at times of the thorax, at times of the diaphragm. When the most intense and poisonous working of the drug is obtained, respiration is paralyzed. When the rectal temperature was above 106° F., increased respiration was observed as the precursor of respiratory paralysis and death. Artificial respiration is the best remedy for the respiratory paralysis of cocaine, as the heart continues to beat for some time after respiration ceases.

Cocaine is of all known substances the most speedy and powerful increaser of bodily temperature. This increased temperature is not lessened by cutting the spinal cord. In determining the therapeutic uses and value of cocaine, experiments were made upon dogs whose skulls had been trephined and whose brains had been injured, and from these and other modes of research it was found that *cocaine was the best of all known excitants*, and this was confirmed by observations upon animals all of whose functions were rapidly failing. The most perfect antagonism was found to exist between chloral and cocaine, with the exception that the depression of temperature produced by chloral is not overcome by cocaine. An animal poisoned with chloral may be restored to consciousness and motion by cocaine, but no increase in the reduced body temperature occurs. The proportionate antagonism may be said to be ½ of a grain of cocaine to each three pounds of body-weight, and 23 grains of chloral to each three pounds of body-weight. In attempting to antagonize the two drugs it must be remembered that in large doses both drugs paralyze respiration. The momentary paralysis of respiration produced by cocaine may be treated by artificial respiration. Fatal doses of chloral are endured when cocaine is first given. Chloroform and ether are direct antagonists by virtue of their subduing spasm and lowering temperature. When a patient is poisoned by cocaine and convulsions occur, with respiratory spasms, chloroform or ether may be given until the danger of spasm is passed, and chloral then used. The experimenter concludes that cocaine is of especial value in all narcotic poisoning by chloral, opium, morphine, and laudanum, where depression of the cardiac and respiratory centres exists. It is valuable in chronic depressant poisonings from the bromides, or in spinal paralyses, in which it has all the advantages, without the poisonous qualities of strychnine.—*Therapeutic Gazette*, September, 1887.

*Salt Baths in Dermal Hygiene and Therapeutics.**

Henry G. Piffard, M. D., of New York, as the result of experiences gained by twelve summers' residence at the seaside, and two months recently spent in the salt-making regions of Western New York, in which period he has carefully watched the effects of salt water on both the normal and diseased integument, writes as follows:

Sea water varies slightly, both in strength and composition, in different parts of the world, but on the average contains about 2.5 per cent. of salt. Many of the brines from the interior contain as much as 25 per cent., and none of them from which salt is manufactured contain less than 15 per cent. Salt is obtained from sea water by solar evaporation, and is produced in large quantities at Turk's Island, in the West Indies, and at various points along the shores of the Mediterranean Sea. Salt thus obtained is met with in commerce in large, hard crystals, more or less discolored by various impurities, and is commonly known as sea salt. It usually contains about 95 per cent. of chloride of sodium, together with a varying, but small, quantity of magnesium chloride, magnesium sulphate, sodium sulphate, calcium sulphate, etc. It is commonly supposed to contain

* Abstract of a paper read at the meeting of the American Dermatological Association, September 1, 1887.

iodine and bromine, or some of their compounds, but this is probably an error. Sea water undoubtedly contains a trace of iodine, but analysis fails to show its presence in commercial sea salt.

Sea water and sea salt, however, contain a peculiar ingredient to which little attention has heretofore been paid. This is a certain glutinous principle of organic origin concerning which Ore* says: "We find in all sea waters a principle which is not referred to in the majority of chemical analyses, and the importance of which should not be overlooked. This principle, the organic element of sea water (*mucosité de la mer* of Bory de Saint-Vincent), belongs to the group of organic substances and is analogous to the coagulable substances of living bodies, but, like casein, is not coagulated by heat. This principle exists chiefly, according to Roccas, in those parts of the sea which abound in animal and vegetable life rather than along the barren beaches. Is it an exudation from the algae which largely contain a glutinous material, or is it the product of the putrefaction of dead animals and vegetables? This is a question that we are not at present able to answer."

The effects of sea bathing vary greatly with the circumstances under which the baths are taken. A plunge into the sea at a temperature of 60° to 70° causes an immediate chill, usually of but brief duration, as the exercise of swimming soon produces reaction and the chill is no longer felt. After twenty minutes or half an hour, if the bath be continued so long, a second chill comes on, due to the gradual but certain abstraction of the bodily heat. This chill persists and becomes intensified as long as the subject remains in the water. On emerging, the bather usually experiences a sticky or clammy feeling on the skin, due to the slime of the sea already alluded to; and this is to many so disagreeable that they sponge or wash off in fresh water before resuming their garments.

The general effects of a bath of this sort vary with the vigor of the subject, the temperature of the water, the duration of the immersion, etc. Those in robust health who are sufficiently prudent to leave the bath before the advent of the secondary chill, and then dress promptly, may derive benefit and renewed vigor from the experience. If, however, the bather is in feeble health, the sea-bath as ordinarily taken is very apt to result in harm rather than good, mainly in consequence of the abstraction of the animal heat by the water, which is usually from 20° to 30° F. lower than the normal temperature of the body. The local effects on the skin coincide in great measure with the general effects. In a vigorous person, a sluggish eczema or a psoriasis will exhibit decided signs of activity, usually in the right direction, provided the water has been decidedly warm (for sea water), and the bath of short duration, followed by vigorous use of the towel and speedy resumption of the garments. If, on the contrary, the patient be feeble or the bath be too prolonged, the effect will be unfavorable, not only on the general condition, but in its local effects, reparative processes being retarded.

The cutaneous affections which, in the author's experience, have derived the most benefit from a systematic course of sea-bathing conducted with prudence and good judgment, are chronic eczema, sluggish psoriasis, and the summer eruptions, such as prickly heat, furunculosis, and in general, pruriginous affections.

* Nouveau Dictionaire de Médecine et Chirurgie, t. ix.

Common experience has demonstrated the advantage to be derived from sea-bathing, in strumous diseases, and we may well believe that strumous affections of the skin respond favorably to this agent. The so-called *scrofulides benignes* of Basin certainly do; but with the *scrofulides malignes* the natural changes are so slow that the effects of an ordinary course of sea-bathing are hardly perceptible. In some cases of lupus there is an associated tendency toward pulmonary tuberculosis that should guard us against too free exposure to the moist air and often raw winds of the ocean.

To derive benefit from sea-bathing it is essential that the water should be comparatively warm and the surrounding air soft and balmy. The duration of the bath should be brief and never prolonged until the secondary chill appears. Free friction on emerging and speedy resumption of the clothing should be enjoined.

Unfortunately, sea-bathing can be pursued, in a latitude corresponding to that of Western New York at least, only for a few weeks during the months of July and August, and in chronic affections should be supplemented by salt water baths at home, that is, if the greatest amount of good is to be obtained; as the best effects from salt water bathing are rarely noticeable except the baths be continued for several months. To this end sea salt may be employed at home, with such frequency as may be desired. A bath containing five pounds of salt to twenty-five gallons of water will be about equivalent in strength to sea water. Baths containing sea salt have been employed to a limited extent only, as the salt is hard, very slowly soluble, and more or less dirty, and is sold at the drug stores at a ridiculously high price. Baths from sea salt leave the same disagreeable sticky sensation on the skin that follows the use of sea water.

Turning from sea-bathing and the use of sea salt to natural and artificial brines made from white salt, the author approaches a branch of the subject which has interested him greatly during the past three years. During the period named he has used, both personally and on patients, baths containing from one-half per cent. to twenty-five per cent. of salt. The ordinary bath-tub, when filled to the usual point, holds about twenty-five gallons of water, and a pound of salt added to it would represent the first percentage, and fifty pounds of salt the second. In the first instance, that is, with the addition of a single pound, it is hardly possible by the senses to distinguish any difference between it and an ordinary bath of fresh water, so far as its effects on the normal skin are concerned; but when the quantity of salt is quintupled, bringing the strength up to that of sea water, there will certainly be noticed the different sensation it conveys to the skin. The water now seems to possess a peculiar softness, and glides over the skin, seeming to wet it more easily than plain water, the feeling being very similar to that produced by water in which a small quantity of sal soda has been dissolved. On emerging from the bath one experiences a sensation of exquisite cleanness, unaccompanied, however, by the dryness and harshness of the skin that follows the use of soda or strongly alkaline soaps. If the salt is increased to ten pounds to the same quantity of water, these sensations will be intensified and the skin will seem to acquire an almost preternatural softness and flexibility. These effects, be it understood, are to be expected when the temperature of the bath is say from 95° to 97° F., and the immersion continued for fifteen or twenty minutes, accom-

panied with moderate friction with a coarse linen towel or soft brush while in the water.

White salt here referred to is that obtained from the natural brine wells in the interior of New York State. It should be of coarse grain and readily soluble. It differs from sea salt in being purer, containing from 97 to 98 per cent. chloride of sodium. It is cleaner, makes a clear solution, instead of one more or less turbid, and is free from the disagreeable scum present when sea salt is used. It will dissolve in one-third the time required for sea salt, and can be obtained at one-third the cost. These features make it much preferable for use, but popular prejudice is in favor of sea salt, owing to the mistaken notion that the latter contains iodine, etc. To meet this, manufacturers have been known to artificially color white salt with decoction of tan bark, and even to mix with it a small quantity of earth, to make it resemble the really less desirable sea salt.

During the months of April, May and June of the present year, Dr. Piffard employed this weak 5 per cent. brine for ordinary bathing, using of course no soap, and found that as a cleansing agent it was fully equal, if not superior, to the usual soap and water. It removed the bodily odors and exuviæ from the skin as readily as soap did, and far more thoroughly. Further, the axillæ and other hairy parts remained sweet and clean and free from odor for a longer period than would have been the case after the most thorough use of soap.

This cleansing and deodorizing effect of salt in 5 per cent. solution was entirely new to the author, and appeared to be an exceedingly valuable feature. Another point in favor of the 5 per cent. brine bath is the fact that the skin exhibits a softness and suppleness that he never experienced from any other form of bath, either Turkish, Russian or Roman. Soda is equally effective in these respects, but tends to make the skin dry and harsh. Considered purely as a luxury, the brine bath is to Dr. Piffard's taste to be preferred to the baths above mentioned, and with the added advantage of being cheaper and readily obtainable at home.

Baths containing 10 per cent., 20 per cent. and 25 per cent. of white salt were also tried. As regards the 10 per cent. bath, it does not seem that the effects differed sufficiently from the 5 per cent. bath to make it worth while to use this greater strength. During July and August of this year about twenty baths were taken, with the salometer standing at 80° to 100°, indicating strengths from 20 per cent. to 25 per cent. of salt. The bath-tub was of unusually large size, holding about 100 gallons, and was supplied with saturated brine from large storage tanks connected with one of the extensive salt manufactories in western New York. There was also a pipe which supplied hot fresh water. By these means it was easy to secure any desired temperature and strength of solution. The strength generally employed was 20 per cent. On entering a bath of this description one is surprised by the extreme difficulty of reaching the bottom of the tub, such is the buoyancy of the water. In fact, with the body completely extended and quiescent, this is impossible, and apparently one-fifth of the body remains above the surface. While in the bath, the water feels soft and pleasant, and is in no wise irritating except to a mild degree to the mucous membranes. A peculiarity of the saturated brine is the difficulty with which it wets the skin. On emerging, the fluid rolls off almost like water from a duck's back, leaving

here and there a few adherent drops. Passing the hand over the surface removes these, and a towel was entirely unnecessary and never employed, the garments being immediately resumed.

In the treatment of cutaneous diseases, the author found weak brine baths of essential service in not a few cases. In acute moist eczema it is well known that a bath in plain fresh water, with or without soap, usually aggravates the local lesions, due probably to absorption of water by the exposed Malpighian cells. If, however, from half a pound to a pound of salt be added to the bath (twenty-five gallons), these effects will in great measure be obviated, and the patient will state that the skin feels better after than before the bath. Thorough cleansing of the surface may thus be obtained without the usual inconveniences.

In sub-acute eczema, in psoriasis, in furunculosis, in irritable summer rashes, whether of a papular or pustular character, in urticaria, and in various forms of scrofulosis, and in pustular and ulcerative syphilides, the 5 per cent. bath (ten pounds of salt to twenty-five gallons of water) is to be recommended, not only as a great source of comfort to the patient, but as unquestionably a therapeutic agent of great ability.

In prescribing these baths, Dr. Piffard usually directs that the water be as hot as could be comfortably borne during an immersion of fifteen to twenty minutes. Cold brine baths, sponge baths, etc., have been experimented with too little to enable him to arrive at any conclusions whatever.

While attention is here chiefly called to the local effects of brine baths, their influence on the general health is not to be overlooked. In most instances a course of twenty to thirty baths, taken daily, or thrice weekly, has been followed by manifest improvement when there was previous impairment of the health. On the other hand, he has never noticed any ill effects from their use.—*Journal of Cutaneous and Genito-Urinary Diseases, November, 1887.*

A Case of Corrosive Poisoning.

(THE OLDHAM CASE.)

Dr. THOMAS HARRIS, assistant lecturer and demonstrator of pathology in the Owens College, reports the following case in the *Med. Chronicle*, May, 1887:

At the Liverpool assizes, recently held, Elizabeth Berry was convicted and sentenced to death for having caused the death, by the administration of poison, of her daughter, Edith Annie Berry, a child aged eleven years and eight months. The case for the prosecution was that the prisoner administered poison to the deceased on two occasions, the first dose being given on Saturday morning, January 1, 1887, and the second administration being on Sunday afternoon, January 2, 1887. It was further maintained, and proved to the satisfaction of the jury, that the poison administered on the second occasion was of a corrosive character, and was the immediate cause of death.

Since the case presents many points not only of medico-legal but also of pathological interest, it has been considered advisable that a more detailed account of the medical aspects of it should be published than has appeared in the various daily papers.

The deceased Edith Annie Berry was at the time of her death eleven years and eight months old. On Wednesday, December 29, 1886, she went to stay with

her mother, Elizabeth Berry, a nurse in the Infirmary of the Oldham Workhouse. The child enjoyed good health, and was described by those who knew her as being a very lively child. Up to 9:30 on the morning of Saturday, January 1, 1887, she was quite well; between 9:30 and 10 o'clock of the same morning she was seen alone in the surgery (where the drugs are kept, and the key of which room was in the possession of the prisoner) with her mother, and a few minutes afterwards she was seen vomiting. The vomiting was violent and frequently repeated. The vomited matter was described by the women who saw it as like thick phlegm streaked with blood. During the morning the vomiting recurred every few minutes, and at one o'clock Dr. Patterson, the medical officer to the workhouse, saw her for the first time. The child was then lying on the sofa in the mother's room, and complained to the doctor of pain over the epigastric region. Dr. Patterson was summoned to see the child again about 11 o'clock on the Saturday night, the vomiting having continued in the meantime. There was then very little alteration perceptible in her condition. On that occasion he was shown a towel on which was vomited matter, which looked like tenacious mucus streaked with blood. Dr. Patterson saw the child on the following morning (Sunday, January 2), the child at that visit appearing to be distinctly better, and Dr. Patterson told the prisoner that he thought her daughter now had a good chance of recovery. At the time of this visit there were no marks on the lips. Dr. Patterson was sent for again about 10 o'clock on the Sunday night, and then found the patient very much worse. The eyes were sunken, the pulse exceedingly small and weak, and the child complained of pain all over the abdomen; he was told that the vomiting had been more severe, and that there had been, since his previous visit, purging, the motions containing blood. He also then noticed that the lips were very red and swollen, and that the interior of the mouth was white, appearing as though it had been coated with white paint. He asked the mother what had caused the appearance observed on the lips, and she replied, "I gave her some lemon and sugar," intimating that she supposed that had caused it. Dr. Patterson called Dr. Robertson in to see the child, and they were both of the opinion that she was suffering from the effect of a corrosive poison, and that there was very little chance of recovery. Dr. Patterson saw the child the following morning (Monday, January 3), when a blister had developed on the previously reddened lip. He saw her again on the evening of the same day, and she died the following morning (Tuesday, January 4), about 5 o'clock. A few hours previous to the death a small quantity of urine passed by the child contained a small amount of blood. With the permission of the mother a post-mortem examination, limited to the abdomen, was made by Drs. Patterson and Robertson on Wednesday, January 5. They found the stomach contracted, its mucous membrane very red, and presenting a number of recent ecchymoses. The mucous membrane of the small intestine was also inflamed, and likewise showed a few recent ecchymoses.

On the following day, Thursday, January 6, 1887, in conjunction with the above-named medical men, Dr. Harris made a post-mortem examination of the body.

The body was that of a fairly-well nourished child, but not a robust one. The abdomen had been opened, and the stomach, the greater part of the intestines,

and certain other viscera, had been removed. Rigor mortis was well marked in both the upper and lower extremities. The cutaneous hypostasis was dorsal, and there were no signs of post-mortem decomposition.

At each angle of the mouth, involving the mucous membrane of the upper lip and the adjoining skin, was a dry brown patch which felt hard, and was quite different both in appearance and to the touch from the surrounding skin, which was healthy. The patch on the left side measured 1¼ inch in length and ⅓ of an inch in width. That on the right side was rather smaller, being an inch in length and ⅓ of an inch in breadth. The patch on each side extended to within a quarter of an inch of the median line.

On the chin to the right of the median line, and a quarter of an inch below the junction of the skin with the mucous membrane of the lower lip, was a dry patch of skin circular in shape and ⅓ of an inch in diameter. This patch was of exactly the same appearance as the patch at each angle of the mouth.

At the edges of each of the above patches the superficial layer of the epidermis was very slightly raised, and this layer was apparently deficient where the dry patches existed.

In addition to the above patches, the mucous membrane of both the upper and lower lip on their outer aspects presented a large number of minute dry points, which were similar, except in size, to those patches.

The mucous membrane of the mouth, tongue, soft palate, and fauces was carefully examined. It was of a pale, white, anæmic appearance, but did not differ, so far as the naked eye could judge, from the appearance which the mucous membrane of these parts usually presents at a post-mortem examination of a body where nothing unusual has been observed during life in connection with these parts.

The *pharynx* was slightly but not extremely congested.

The *œsophagus*, at the junction of the lower with the middle third of the tube, presented a black, corroded, charred patch, circular in shape, and an inch in diameter. This patch was seated on the anterior wall of the gullet, and involved the mucous membrane only. There was no induration about this part, and no sign that at this point there had been any natural disease, either recently or at any long antecedent date. The blackness was exceedingly pronounced, and was especially marked at the edge of the patch, the mucous membrane over the central part having been apparently removed.

Both above and below this patch the mucous membrane of the œsophagus presented a number of fine black lines or streaks, exactly similar to the above described charred patch; otherwise the gullet presented no abnormal appearances.

The *bladder*, which was contracted, presented an abrasion of the mucous membrane at the base of the organ. This abrasion, the size of a shilling, was seated not directly behind the internal orifice of the urethra, but to the left of that opening, about half an inch away from it. The patch was very red, and at the edges were a number of minute ecchymoses into the mucous membrane. This lesion was undoubtedly of quite recent date; it was not an ulceration, but presented an appearance which we should expect if the mucous membrane over the area had been abraded by any agent a short time before death; otherwise there were no abnormal appearances connected with the bladder.

A small part of the duodenum was found remaining in the abdominal cavity; it contained a small quantity of dark brown fluid; the mucous membrane was pale and not congested. The same day he also examined the stomach and intestines, which had been removed from the body twenty-four hours previously by Drs. Robertson and Patterson. The stomach was not of unusual dimensions, it had been cut open, and in the bottle along with it were about three drachms of a dark-colored fluid. There was no abnormal smell. The mucous membrane of the stomach presented a number of recent ecchymoses, which were most numerous at the cardiac extremity, but were also present all over the interior of the organ. The mucous membrane was otherwise pale. Drs. Patterson and Robertson stated that when they made the preliminary examination the stomach was very markedly contracted, and the mucous membrane very much congested, being of a quite different appearance to that presented at the time of Dr. Harris's own examination. The mucous membrane of the large bowel presented no abnormal appearance; it was covered with semi-solid, yellowish green, fæculent matter. The mucous membrane of the whole length of the small intestine, with the exception of the duodenum, was congested, and presented a few but only a few recent ecchymoses. The most marked congestion was in the jejunum.

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The view taken by the medical men, who appeared for the prosecution, was that the deceased had died from the effects of a corrosive poison, and it was stated, but merely as an opinion, that the poison was probably sulphuric acid. It was also believed that there had been two doses of poison taken, the first on Saturday morning (January 1st), and the second at some hour between Dr. Patterson's visit on Sunday at mid-day, and his second visit on Sunday night. No statement was ever made by any of the medical witnesses as to whether the poison employed was the same on both occasions, but it was believed that although the second was a corrosive poison, the first was simply an irritant; and that the same poison might have been used on both occasions, but in a more diluted form at the first administration.

Although there can be no doubt that the child died from the effects of some corrosive poison, it is by no means certain as to what was the exact corrosive employed; and, in addition, the case presents several other pathological points which are worthy of attention.

Whatever the nature of the poison, it must have been administered in a liquid form. The appearance of the lips is sufficiently conclusive on this point. Such an appearance could not have been produced by herpes labialis, even though that eruption had been irritated either by scratching or by the administration of creosote, which was one of the points which counsel for the defence attempted to establish.

The appearances observed in connection with the alimentary canal were quite conclusive that a corrosive poison had been taken. On Sunday afternoon, Dr. Patterson noticed for the first time that the interior of the mouth was of a peculiar white appearance, as though the parts had been brushed over with a coating of white paint; and Dr. Robertson, who saw the child the same evening, said, "I had never seen a tongue like it before;" so that the whiteness was not due to a simply furred tongue. At the post-mortem examination we could not see that the mucous membrane of the mouth, or that of the fauces, presented any

noteworthy features. It was simply pale and anæmic, as is the case in death from many diseases. Even though the mucous membrane of the mouth has been congested during life, after death it usually presents a pale appearance. The observation that in this case the mucous membrane of the mouth after death did not appear unhealthy to the naked eye, does not render it at all improbable that the appearance during life was not as described by those who saw the child on the Sunday evening. The child did not succumb until the following Tuesday morning, so that there was ample time for the superficial epithelium of the mouth, which may have been coagulated and rendered of the peculiar whiteness described by the medical attendants, to have been detached, and any hyperæmia of the mucous membrane would not necessarily be persistent after death.

The changes in the œsophagus were, however, the most marked of those found at the autopsy, and could not be interpreted except on the supposition that a corrosive poison had been introduced into the body. The charred black patch at the junction of the lower with the middle third of the gullet, and the black streaks above and below the large patch, were certainly the result of the action of some corrosive poison, and it was chiefly the appearances here presented that rendered it probable that strong sulphuric acid was the poison employed. Several other corrosive poisons do sometimes cause patches of corrosion which have more or less a black appearance, but the absolute blackness of certain parts of the œsophagus, and the charred condition, was more in accordance with the action of sulphuric acid than of any other corrosive poison. An attempt was made by those appearing for the defence, to establish the view that the black appearance in the gullet was due to the action of tannate of iron (a mixture of perchloroide of iron and infusion of cinchona having been prescribed by Dr. Patterson at the commencement of the illness), on an old tubercular ulcer of the œsophagus. But apart from the extreme rarity of tubercular lesions in the œsophagus, such a view would not account for the jet blackness, and for the black lines of corrosion which were present in addition to the large corroded patch.

The stomach showed no signs of corrosion, but it did of acute inflammation. The organ had been removed and examined the day before the complete autopsy was made. When the body was first opened, the stomach was contracted, its mucous membrane distinctly congested, and presenting a large number of minute ecchymoses. Twenty-four hours after its removal Dr. Harris found that its mucous membrane was generally pale, but that there were a number of ecchymoses present at various parts. The change of appearance after the organ had been severed from its connections, and allowed to stand in a jar for twenty-four hours, is not to be wondered at, since the color of the mucous membrane of the stomach differs very markedly when a post-mortem examination is made a few hours after death, from that which is seen when the body has been dead a much longer time. It is not unusual to find the mucous membrane of the stomach very red if the examination is made soon after death from natural causes; whilst it is more commonly found pale when the examination is postponed until a later period. The fact also that the ecchymoses were present, not only at the cardiac extremity, but also at other parts of the stomach, was of some importance, since very frequently there are a large number of red spots, exactly like ecchymoses, round the œsophageal

opening into the stomach, which are simply the result of post-mortem changes. The whole length of the small intestine was congested, with the exception of the duodenum.

Consequently it will be noted that the lesions found in the alimentary tract were peculiar in this respect. They were not continuous; the whole of the tract from the mouth to the ileo-cæcal valve was not affected, but on the contrary, certain parts remained quite free from the action of the poison, although the poison must have passed by such healthy portions, leaving them unacted upon. Such, however, is not unusually the case after the introduction by the mouth of a corrosive poison. Litten,* as the result of a large experience, states that in sulphuric acid poisoning the lesion is very often a discontinuous one. It has been repeatedly observed that in cases of poisoning by sulphuric acid you may have the œsophagus and the intestines affected while the stomach remains intact. It is also found as the result of experience, that stricture of the œsophagus resulting from the action of sulphuric acid at some long antecedent period, is most commonly found at one of the three parts of the gullet, at its commencement, at the point of crossing of the left bronchus, or just above the opening into the stomach. And further, you may get a stricture of the pyloric extremity of the stomach as the result of sulphuric acid poisoning, in which the mucous membrane of the remaining part of the stomach and of the œsophagus appears to be quite intact. (Litten, *loc. cit.*) In the Museum of the Owens College there is a preparation from a case of sulphuric acid poisoning in which the whole interior of the stomach is black and charred, but the portion of the œsophagus attached thereto is healthy, and the remaining part of the gullet appears from the report to have been unacted upon. So that although the discontinuous nature of the lesion in this case could scarcely be held to support the view that the corrosive poison employed was sulphuric acid, nevertheless it is not at all inconsistent with the view adopted.

The lesion of the mucous membrane of the bladder was peculiar, and cannot be satisfactorily explained as the *direct* result of any form of poison. The lesion was quite a recent one, and appeared as a simple abrasion or erosion of the mucous membrane. The abrasion was about the size of a shilling, and was situated at the base of the bladder near the orifice of the urethra, not directly behind the opening of that channel, but a little to the left of it. The position of the erosion is of some importance, since it presented such an appearance as would result from the removal of the lining membrane of the bladder by any sharp instrument. The ecchymoses at the edges of the patch showed that the erosion had been produced before death, but from the position of the abrasion, in relation to the internal orifice of the urethra, it was difficult to believe that any instrument introduced by the urethra had been the cause of the lesion. The lesion was not an ulceration, but a simple abrasion of the mucous membrane, and may possibly have been occasioned by violent contractions of the bladder, strangury not being uncommon after the administration of powerful corrosive poisons. The kidneys, it will be remembered, were quite healthy; they were not even congested; so that it was very improbable that cantharides had been administered,

* "Ueber vergiftungen mit Schwefelsäure." Von Dr. M. Litten. *Berliner klin. Wochenschrift*, 1881, page 616.

and no preparation of cantharides would account for the appearances found in the œsophagus.

There can be very little doubt but that two doses of poison were administered to the deceased child, the first dose being given on the Saturday morning (January 1st), between 9:30 and 10 a. m., the second on the following Sunday afternoon (January 2d). The change for the worse, which was observed on the Sunday afternoon, could not be accounted for by a relapse, without assuming that another dose of poison had been given between the morning and the evening visit of Dr. Patterson. It was at Dr. Patterson's second visit on that day that the first evidence of corrosion of the lips and of the interior of the mouth was observed, and those appearances were then so marked, and accompanied by such evident symptoms of additional gastro-intestinal irritation, that they could not have escaped notice at the previous visit of the medical attendant. There was also abundant evidence from lay witnesses to show that the appearances round the mouth first manifested themselves on the Sunday afternoon. As to the nature of the first poison, there is no evidence which allows us to say more than that it was an irritant poison. Certainly it was not such a powerful poison as that administered on Sunday afternoon; but it may have been the same form of poison given in a more diluted condition.

The chemical analysis, which was conducted by Mr. C. E. Estcourt, the public analyst for the City of Manchester and the borough of Oldham, revealed no evidence of any form of poison in the alimentary canal.

This is scarely a matter for surprise, since the child was first taken ill on the Saturday morning, and died on the following Tuesday morning, 67 hours after the first symptoms manifested themselves, and at least 36 hours after the time when it is believed that the second and fatal dose of poison was administered. During the illness there had been both violent vomiting and purging, so that the conditions were present which would favor the elimination of corrosive poisons from the body. A number of cases of corrosive poisoning are recorded, where probably much larger quantities of poison entered the alimentary canal than was the case in this instance, and where death ensued after a shorter interval, but where no poison was subsequently found on chemical analysis. It is only necessary to cite in support of this statement one of the cases reported by Taylor,* where "nearly two ounces of the concentrated acid were swallowed; the patient died in twenty-five hours; the stomach was extensively acted on, and yet no trace of the acid could be discovered in the contents."

There was evidence that the child once vomited on the carpet in the sitting-room occupied by the prisoner. The portion of carpet with which the vomited matter came into contact showed no discoloration, such as might be expected, had the vomited matter contained a powerful acid, like strong suiphuric acid. The analysis of the same portion of the carpet also gave negative results. It is doubtful which vomit was received on the carpet; it is not known whether it was the first vomit produced by the deceased, or a subsequent one; but certainly, it was from an attack of vomiting on Saturday morning, consequently shortly after the *first* dose of poison had been administered. Now, as to the nature of that

* "On Poisons in relation to Medical Jurisprudence." By A. S. Taylor, M. D., F. R. S., 3d Edition, p. 197.

first dose of poison, no information was obtained; but certainly it was not so powerful a poison, nor in so concentrated a form, as that given on the second occasion, the following day; and it is only in reference to the nature of the poison administered on the Sunday afternoon, that Dr. Harris ventured to make any statement. Furthermore, immediately after the attack of vomiting, the vomited matter was removed, and the carpet washed and rubbed with scrupulous care. The absence, therefore, of any change in the carpet on to which the vomited matter fell, proves nothing.

One of the most important and not the least interesting features of this case was the age of the deceased. Murder by means of a powerful corrosive poison when the victim is nearly twelve years of age is most remarkable, and especially when the sufferer never makes any statement as to the time when the poison was taken, nor by whom it was administered, although most severe pain must have been experienced at that time, provided the child was in a state of consciousness, and there is no evidence to show that she was not so. Such absence of statement was possibly to be explained by the influence which the mother had over the child, and by the fact that the mother was always in the room during the whole time the doctor's visit lasted. Certainly this difficulty is not removed by assuming that either the poison was accidentally administered by some person or taken by mistake by the child herself. All the circumstances showed that the case could not be one of suicide. The only important question which was at all doubtful was as to the person who administered the corrosive poison which caused death, and that person the jury at the assizes were convinced was Elizabeth Berry, the mother of the deceased child.

The Effects of Diet upon the Production and Treatment of Skin Diseases.

James C. White, M. D., Professor of Dermatology, Harvard University, in a paper read at the eleventh Annual Meeting of the American Dermatological Association, makes the following sensible statements:

The question of diet in the etiology of cutaneous disease has always been regarded as important. Most writers on dermatology speak of it as such in their general discussions of the subject, and in relation to the causes and treatment of many individual affections. The medical profession at large also looks upon the subject as a most important one, as shown by their occasional published statements, and especially by the advice given to their patients. The public, too, holds a similar opinion, even a stronger one, as manifested by the universal questioning with regard to the supposed connection between this or that article of food and the cause and cure of the various affections about which we are consulted. The subject is one of ancient and immediate, as well as of universal interest, and it will be the author's object in this brief paper to enquire what is really known about it.

How may this be best arrived at? Shall physicians adopt in some measure the views which prevail among mankind in general, on the ground that such popular beliefs must rest on some positive foundation? Shall they accept unquestioned generally entertained opinions of the profession with regard to certain particular articles and whole classes of food, as trustworthy deductions from prolonged and

trained observation? Shall they feel assurance, finally, that they may find in the writings and publicly expressed statements of dermatologists of all nations, a body of experts from which there should be little occasion to appeal, a satisfactory consensus of opinion, and some well-established knowledge? Dr. White then gives an analysis of the information furnished by these sources:

1. *Popular Views.*—It might be assumed that man, approaching with infinitesimal slowness toward his present state of civilization, had retained in some measure that so-called instinctive part of his early nature, which, it is believed, enables the animal to discriminate between the harmful and the good in its natural food supply, and that in the ever-widening sources from which this has been derived, from his savage state upwards, a protective judgment founded on experience in this direction would have been evolved to a proportionate extent, so that now the accumulated and recorded evidence of individuals would have established a positive basis of distinction between the harmless and the injurious in relation to the causes of all diseases, certainly of those of the skin, the morbid changes in which are exposed to the eye of every one. It would be needless to seek backwards for the germs of such views among the savage tribes of the past, for mankind of many differentiated stocks exist upon earth to-day in their most primitive state, and under the widest differences of dietary conditions, and their customs and their diseases have been studied and recorded by numerous and careful observers. The savage has learned everywhere by experience to distinguish between what is good for food and what is dangerous to life in the vegetable and animal kingdoms, but his observations have gone much deeper and taught him the remedial virtues existing in many plants, as well as their virulent principles, which he extracts for his use. Skin diseases have been found to exist among all savage tribes and under the widest range of diet; the root-digger, the blubber and raw-meat eater, the exclusive fish eater, the strict vegetarian, etc.; but waiving for the present the consideration of how far such peculiar or such restricted forms of diet may have to do with the causation of these diseases, it may be stated that no evidence exists that the occurrence of these affections has been attributed by the savages themselves to their customs of eating. It is among civilized nations, those amongst whom we live and practice our calling, that we find firmly held opinions concerning the relations of certain common articles of food to the occurrence of skin diseases; upon the broader question of classes of diet they have no fixed views. It is difficult to determine, however, how far such opinions, whether right or wrong, are self-formed, or are the relics or reflections of those previously or at present held by physicians. But it is astonishing to see how few are these articles, about which any widespread beliefs or prejudices exist, judging by one's personal observation in the matter. They may be enumerated in a very small compass.

Butter is generally regarded as a creator of "humors." In a great majority of the cases of the more common affections of the skin, especially eczema and acne, Dr. White is asked if it is not bad for the disease, or if it should not be prohibited, or he finds that its use has been forbidden to the patient by some household authority. So general is this belief in all portions of the country from which his patients are drawn, that he always tries to anticipate such inquiry by stating in his directions for treatment that butter may be eaten in unlimited quantity. It is

difficult to determine how such a prejudice against this substance could have arisen and been perpetuated, unless its former use in a "strong" or rancid state, or its entering into the composition of so many "rich" and indigestible dishes, or its employment as a frying medium, may have given rise to disturbances of digestion: but under these conditions it is no longer butter. It may be stated without exception that uncooked butter is a perfectly harmless food, so far as the skin is concerned.

Oatmeal forms an essential part of breakfast of a large proportion of the inhabitants of the United States and Canada. It is raised for this purpose in vast quantities here and imported also from Scotland. It is eaten in the form of porridge and cakes chiefly, with the addition of milk, cream, sugar, molasses, or butter. It is commonly believed to be "heating," to be the cause of eruptions, and is often abstained from under this fear by those who have skin diseases. Is there any foundation for this belief? Dr. White knows of none. It is eaten by vast numbers of people from infancy upwards, who never exhibit the slightest disturbance of the skin; and the cutaneous affections, in the causation of which it is so often regarded as a probable factor, are those of the most common occurrence among all classes and races, including those who never use it. The author has for years sought for an explanation of this prejudice among his patients who entertain it, but has in no instance found a reason why any individual should hold it. He has repeatedly looked for some effect in removing it from and adding it to the diet of patients with affections which it is supposed to influence, but has never seen the slightest ill result from its free use. He believes it to be entirely harmless in itself. Of its supposed value above other cereals in the dietary table, it is unnecessary to speak.

Buckwheat.—The seed of *Fagopyrum esculentum*—a polygonaceous plant introduced from Europe—forms at certain seasons of the year a favorite article of food, especially with the young. This is to be explained by the custom of obscuring its disagreeable taste by mixing it with other meals, and by smothering it in sugar, syrup or molasses. It is commonly looked upon as promoting the production of certain skin diseases, especially acne. Dr. White however does not think it has in itself any direct action of the sort, but it is not unlikely, considering that it is fried in fats, that it is mixed with all kinds of "raising" substances to make it "light," that it is eaten in haste while hot, that with it great quantities of saccharine matters are consumed, that the buckwheat cake may aggravate, or possibly even give rise to, acne pimples, by producing disturbances of digestion in those disposed to acne.

These may be taken as examples of the popular prejudices which generally prevail concerning certain articles of diet. The list might be slightly extended, and no doubt similar views concerning other common foods exist in other parts of our own and other countries, alike groundless and inexplicable. Who can suggest for example a reason for the popular belief that tomatoes are a cause of cancer? Yet this *vox populi* rests upon just as real data as any evidence which exists to sustain these other beliefs. For many of them our profession is directly responsible, and they are in fact still openly upheld by it.

2. *Professional Theories.*—It would be impossible, as just stated, to distinguish the views held by the laity upon this subject from those which have origi-

nated in and are still maintained by the profession in general, and just as impracticable would it be to attempt to specify what are the loose and crude theories held by the latter, and what the well founded opinions which have been adopted on the expert authority of dermatologists, for it is doubtful if any such of wide acceptance exist. The author has examined the chapters of etiology in all recent general treatises of skin diseases, and is surprised to see how little, beyond what is vague and unproven in this direction, they contain. In connection with those on the causes and treatment of individual diseases more specific statements are occasionally made, but even upon these points opinions differ widely, and are with few exceptions unsupported by any presentation of evidence. Among writers of different nationalities a very great diversity of views exists. A few examples will best illustrate this most unsatisfactory state of medical art.

Fish is looked upon as a suspicious or positively dangerous food in all skin diseases by nearly all patients, by physicians generally in many cutaneous diseases, and prohibited in a few affections by some dermatologists. How much truth underlies these views? Who can state that he has observed a single instance in which it could be scientifically demonstrated that it had directly produced a disease of the skin, or aggravated or interfered with the cure of one already existing? Possibly the law of exceptions would rule here to the extent of recognizing that fish may, at times, irritate individual stomachs, and thereby provoke a fugitive erythema or urticaria; but so will other articles of food. A distinguished practitioner and well-known dermatological writer of France tells his patients with eczema that they will continue to have the disease as long as they eat fish, and that they cannot recover unless it be abstained from; in other words, he believes that eating fish causes eczema. Is this a fact? There are certain ways by which this question might be satisfactorily answered. Is it known that persons who occasionally or daily eat fish as part of a mixed diet are more liable to have eczema than those under similar conditions of life who seldom or never eat it? Are nations that live largely or exclusively upon fish more liable to eczema than those that rarely eat it? Or, stating it in another way, do maritime peoples have eczema more than those inhabiting the interior of continents? Has eczema become more prevalent in the inland states of America since fresh fish has been distributed to them so profusely under the recent system of rapid transportation? Do patients with eczema, those in whom it is supposed to have been produced or aggravated by fish-eating, recover by the simple omission of this diet alone? Do not, in fact, patients recover from eczema who continue to eat fish? And how can the physician who believes that they do not, know that his patients recover more rapidly or in larger proportion than those who are permitted to eat it? Does he treat a series of cases upon fish diet, and another without it, but otherwise identically? When information upon all these points has been satisfactorily rendered, then Dr. White will admit that an authoritative opinion upon the question may be formed; so far as his personal knowledge covers them, it leads him to the conclusion that the eating of fish does not cause eczema, nor interfere with its favorable course under treatment.

So, too, with regard to meat. A general opinion may be said to prevail in the profession that meat is at least to be avoided in the diet of patients with inflammatory affections of the skin, and there are some dermatologists who ascribe to

it an important agency in their causation. Is it likely that the physician practicing among the exclusive beef or mutton eaters of certain parts of the world should hold the same opinion as to the causes and treatment of eczema, for instance, in this regard, as his *confrère* among the rice eaters of India? Should any one in the land of mixed eaters attempt to form or express an authoritative opinion upon this point without regard to the data to be derived from both these sources? Not many years ago a well-known writer upon skin diseases, A, proclaimed that psoriasis could be cured by an anti-meat diet. This method was undoubtedly tried by many who found in it nothing to warrant a farther trial. More recently a similar paper, by B, has appeared, strongly advocating the treatment of the same disease by an exclusively meat diet. If either of these publicly expressed opinions be correct, the other is of necessity without foundation. If A were in absolute charge of a skin ward of a hospital, and would report the changes which took place in twenty or more cases of psoriasis during a six months' residence under an exclusively anti-meat diet, without the use of any therapeutic measures, externally or internally employed, the patients presenting the usual varieties of the disease according to duration, extent, intensity, etc.; and B under similar circumstances would observe the effect of an exclusively meat diet, we might derive from the publication of such results some positive knowledge. But A and B are not entitled to form independent opinions; their experience must be combined.

Another faulty system of theorizing has largely prevailed among dermatologists in the therapeutical relations of the subject. To the firm believer in diathetic etiology, the selection of a dietary consistent with such belief is both an easy task and a necessity. If eczema, for example, is to him merely a local tissue expression of gout, and he finds in the treatises upon this disease a table of articles of food to be avoided, it becomes a very simple matter to draw the conclusion that these substances also give rise to eczema, and are to be prohibited in its treatment. Of course, there should first be established the connection between these two affections by evidence that all reasonable students can accept before any judgment can be formed as to a common system of dietetics for both. In fact, the ratiocination upon this question is often as follows: Dr. X., a distinguished physician, tells his patient with eczema that his diet and treatment are to be so and so, because his disease arises from the fact that he is gouty. The patient says, "Why, I never had a symptom of gout in my life." The doctor replies, "That makes no difference; you must have gout, because otherwise you could not have eczema."

Methods of Study.—Until proper methods of study are generally recognized and insisted upon, and such narrow and fallacious systems of reasoning are abandoned, no advance in the dietetics of skin diseases will be made. In what way, then, should this study be approached? As a science of even general dietetics can hardly be said to exist, the study in the beginning must be of necessity largely empirical. First, one may endeavor to ascertain through reliable travelers, missionaries, many of whom are educated in medicine, and resident physicians, what diseases of the skin prevail with extraordinary frequency, severity of type, or unusual form, among tribes or communities where a restricted diet of any kind has been long followed. Thus, among the natives of the northwest coast, fresh salmon

forms the only food for several months, and dried or smoked salmon the exclusive or larger part for the rest of the year. The Eskimo lives amost wholly on blubber and raw meat, and other Northern people mainly on pemmican. The inhabitants of some immense inland plains subsist almost entirely on fresh beef or mutton. Some tribes find their nourishment in the milk of animals. Millions of Eastern people have no other diet than rice and a little fat. Other forms of starch eating are the potato of the Irish, the oatmeal of the Scotch, the macaroni of the Italians, and the poe, taro, yams, etc., of Pacific Islanders. The Grahamites and vegetarians amongst ourselves afford scattered individual examples of diet with but little animal and no flesh food. Many other well-known instances of exclusive and peculiar systems of diet might be mentioned, but these will suffice to show the opportunities which exist for the study of their influence in the causation of skin diseases. Of course, without the fullest information in relation to all the other conditions of life of the people studied, no inference whatever could be drawn from the facts of diet and of skin disease co-existent in any such instance. The uneducated mind drew the inference that salt meat and scurvy associated on shipboard stood in relation to cause and effect; the absence of the lime juice or its equivalent, as the real etiological factor, was not appreciated. Physicians should be on their guard against the same faulty method of induction in attributing similar positive action to any article or class of foods in our study.

Another enquiry of value would be, what change in the type or character of skin disease has accompanied the introduction of new diets among nations of advancing civilization, or what new cutaneous affections have followed thereon? This should be conducted with the same care to exclude the manifold errors which would surround a partial investigation of the question.

From such difficult and broad ethnological questions one must descend to the more limited fields of research afforded by individual cases, open to all dermatologists in some measure. It is only those who are fortunate enough to have direction of large wards for the care of cutaneous diseases, however, who can carry on experiments upon these points with satisfactory exactness, and whose results can be received without serious questioning. How or where, outside of such establishments, can any physician carry out any practical scheme of testing the effect of variations in food, or of any restricted system of diet, upon the aggravation or amelioration of a skin disease? Where else could he hold control of a patient long enough for such experimentation without the necessity of introducing into the case the complication of simultaneous internal or external medication? No; the conclusions of every dermatologist upon such points, drawn from observation of peripatetic dispensary or private practice, however extensive these may be, are to be regarded as of comparatively little value, as a rule, on this account. He may at the most say: "I cure my patients in this and that affection, on this or that diet, more quickly and easily than I formerly did on different diet;" but it would be essential, before accepting such statements as in any way conclusive, to know that no change whatever had also been made in the therapeutics employed then and now. Unless a minute and complete report of both series be furnished for analysis, any conclusions offered may fairly be regarded as impressions, not as proofs. It is not at all strange that opinions based

upon such methods of study should forever be met by like but antagonizing statements of other observers. Dr. White does not mean that the observations of the individual dermatologist are of no value, but that sweeping conclusions are generally false conclusions.

Laxity exists, too, in the meaning of terms used in classifying so-called injurious articles of food. There are some which may be of themselves directly provocative of cutaneous disturbance, and there are others which act only indirectly upon the skin by first disturbing some other parts of the economy. If an indigestion causes abnormal action in the integument, and some article of food often gives rise to the former alone, and never to the latter without the gastric disturbance first, then such a food cannot be said to be primarily or directly the cause of the change in the integument. Clams for example, when eaten by some persons, produce symptoms of severe gastric irritation, and in a certain percentage of these a subsequent disturbance of the skin more or less general. This latter action is no doubt sometimes the result of the impression primarily produced upon the stomach, and the dermatosis is indirect and secondary. But if meat is spoken of as causative of cutaneous disease, such effect, if true, is inexplicable by such action on its part, for it is not claimed that it produces indigestion. Fish when boiled or broiled may be eaten with impunity, but when fried, may give rise to disturbances of the digestion and the skin. It is not the fish which has provoked the trouble, but the overheated fat incorporated with it. It is important, therefore, in discussing the relation of foods to the etiology of skin diseases, to recognize such distinctions, and to state as definitely as possible whether articles in question are accused of being specifically injurious, that is of acting in some unknown way directly upon the skin to its disadvantage, or whether they act thus secondarily as promoters of indigestion, or by otherwise disturbing the economy.

Dr. White thinks there is no better way of approaching this individual method of study than to endeavor to state simply his observations concerning some articles of food which have seemed to him to be in any way injurious to the skin, subject, of course, to the criticism of individual opinions above stated. He does not attempt to explain how they act, because in most instances he says he does not know. The black list is small, as will be seen.

Alcohol.—For the present purpose this is regarded as a food. There is no older or more widely held popular opinion in connection with the present subject than that excessive use of alcoholic drinks paints itself upon the face of a man. The flaming portrait by which Shakespeare has immortalized the countenance of Bardolph, the tavern talk of successive eras of writers, and the expressions so commonly in use at the present day, "grog blossoms," "toddy blossoms," etc., are sufficient illustrations of it; and yet many a bearer of a "jolly red nose," who has never used alcohol at all, suffers the false judgment of his fellow-men. There can be no doubt that excess in alcohol drinking may give rise to a permanent enlargement of the facial capillaries, indicated by a diffused hyperæmia of varying shades of redness, and by a visible enlargement of individual twigs, but how far it is directly accountable for the follicular inflammation and elephantiasis of the parts, which at times accompany this angioma, is somewhat doubtful. Professor Hebra used to say that he could distinguish, by the appearances of the face,

between the brandy drinker and the wine drinker, even between those who drank Rhine and Austrian wines on the one hand, and those who used the stronger vintages of Hungary, Spain and Portugal. But besides these tendencies to rosacea on the part of those who drink too freely, so well understood, have been noticed other changes in the skin from the effects of alcohol. In the out-patient department at the hosiptal, Dr. White often sees persons of both sexes presenting excessive grades of dermatitis in the form of diffused impetiginous, ecthymatous, and even furuncular efflorescences, sometimes generalized, but mostly confined to the limbs, especially the lower legs, which exceed in the intensity and depth of the inflammatory process all ordinary forms of acute dermatosis. So characteristic are these appearances, that he is seldom disappointed in the reply when he asks if the patient has not recently been drinking spirits in excess. These dermatoses generally follow a spree of several days' duration. Dr. White has known lager beer in a great many instances to produce acne about the lower face, chiefly in women. So susceptible are some persons to this action that a single glass will be followed within twenty-four hours by a moderate crop of small pimples on chin and cheeks. It would be wrong, however, to ascribe this effect to the alcohol positively, because beer contains so little of this and so many other elements, and an equivalent amount of wine fails to produce it in such persons. There can be no question, too, that alcohol greatly aggravates the intensity and course of most inflammatory affections of the skin, both by quickening the cutaneous circulation, and by its stimulating presence in the capillaries of the affected parts, so that its use in such diseases should be strictly forbidden.

Acid Fruits.—At certain seasons acute eczema is produced in some persons by eating fruit containing abundant acid. This has been noticed during strawberry season, and later at the time of the ripening of pears and grapes. So noticeable is this action of strawberries, that a decided increase in the number of patients with eczema is expected in June. The type of the inflammation is generally erythematous and papular, in patches or diffused, but it presents no peculiarities in seat. The proportion of persons affected in a similar way by the autumn fruits above mentioned is not so large, but there can be no doubt of such occasional action on their part. An aggravation of an existing eczema has been repeatedly observed when they were eaten, and hence their use is always forbidden in this disease. Such injurious effects from eating other fresh fruits, native or imported, have not been noticed even in the most acid lemons and oranges.

Strawberries, moreover, often excite an urticaria, as is well known. Many persons cannot eat them at all without the most violent agitation of this kind ensuing. They are sometimes very freaky, however, in this respect, of which Dr. White's own experience is an illustration. While traveling in Switzerland, thirty years ago, he found himself, for the first time in his life, a victim of urticaria. It recurred frequently, before he discovered that it always followed the eating of wild strawberries. During his boyhood, passed in Maine, he had only eaten the wild fruit, and always without bad results. On his return, the next season, he visited Maine again, and ate the native berries without harm, and he supposes that possibly some peculiarity in the Swiss species was the explanation of the cutaneous disturbance. Ten years later there was a summer when the cultivated

fruit repeatedly produced an urticaria upon him, although they had never done so before, nor have they since then. Four years ago he was again in Switzerland, and ate the native berries from curiosity, for they were far from agreeable to the taste, but they produced no visible effect upon his skin. So variable is the action of strawberries, or individual susceptibility to their influence.

Apples sometimes produce, especially in those liable to follicular inflammation, an acneform efflorescence about the mouth. In children a larger form of eruption, clustered vesicles or shallow, impetiginous or ecthymatous lesions upon the lower face, resembling some kinds of so-called impetigo contagiosa, is thought to result from apple eating. This affection is well known in the country in late summer and autumn, and is called "apple humor." Sweet cider is supposed to produce similar effects. This action of apples is not positively demonstrated, but is worthy of observation.

Nuts.—It is well known that some nuts, especially the European walnut, produce an irritation of the lining membrane of the mouth in many persons. They may also give rise to herpetiform inflammation of the lips and bordering skin, and sometimes produce an acne, due no doubt to their indigestible nature when eaten in excess.

Shell-fish and Crustaceans.—Lobsters, crabs, mussels, oysters, clams, etc., all occasionally give rise to urticaria, but in fact rarely, when we consider in what vast quantities they are eaten. Some persons can never eat them in the smallest amount without being thus affected; in others the effect sometimes follows their ingestion, and sometimes does not; while the majority of mankind may eat them always without harm. This action is not necessarily dependent upon the degree of gastric disturbance produced by them, for this is often excessive without the slightest cutaneous irritation, and more often the urticaria is developed with no perceptible symptoms of indigestion accompanying.

There are other meats which exceptionally produce similar effects, the skin or stomach of everybody apparently having their individual *bête noir*. One of the few instances of giant urticaria Dr. White ever saw was in a gentleman who, during two or three years of his life, could not eat the least bit of roast turkey without having an urticaria, sometimes of the ordinary forms, but on several occasions presenting swellings varying in size from a pigeon's to a small hen's egg, and lasting several hours.

While the ending of this paper is unsatisfactory, Dr. White says it is in this respect consistent with the state of our knowledge of its subject, and his purpose and excuse for presenting it in such form are that it may the better illustrate how much remains to be done to elevate the dietetics of cutaneous disease to its proper position in our special science.—*Journal of Cutaneous and Genito-Urinary Diseases*, November, 1887.

III. GENERAL CLINICAL MEDICINE.

Two Cases of Tetanus, with Treatment.

J. HAUBER reports in the *Münchener med. Wochenschr.*, two severe cases of well marked tetanus in two boys, aged 9 and 7 years, cured by means of energetic massage under prolonged chloroformization. Morphia, chloral hydrate, lukewarm baths and electricity were tried and failed.—*Memorabilien*, September 3, 1887.

Two Cases of Inoculation with Tuberculosis.

(1) Dr. MARTIN SCHMIDT (*Inaug. Diss.*, Leipzig, 1887), relates the following:

A woman of 44, of strong frame, with good family and previous history, was bitten in the upper lip by her husband, then dying of phthisis. The lip swelled steadily and the two small wounds healed up, except in minute moist spots, which then enlarged. Five months later the woman injured the little finger of her left hand. Here too the wounded part swelled, and six months after that two nodes formed in the skin of the left wrist, which on being opened gave exit to blood and pus. About a year after the bite, a left-sided pleurisy came on, which was followed by coughing and shortness of breath. A year later the woman was admitted to the Leipzig surgical polyclinic, when traces of the old pleurisy were found, with signs of advanced phthisis. On the upper lip was a crater-like ulcer, which on extirpation proved to be tuberculous. The growths on the hands, which resembled port mortem tubercles, were also tuberculous.

(2) Dr. A. ALSENBERG (*Berl. klin. Wochenschr.* xxiii., 35, 1886), reports the following interesting case:

A boy of healthy parentage was circumcised on the eighth day, and the operator sucked the wound several times. This did not heal, but suppurated, and after about two months the inguinal glands were enlarged on both sides. The boy came under observation in the end of February, 1886. His general health was good, lungs not affected. On his prepuce was a ring-shaped ulcer with undermined and ragged edges covered with yellowish pus. The surrounding tissue was swollen; the inguinal glands enormously enlarged. On the left side the skin had broken down, and a sound could be passed up under the skin of the abdomen.

A cloudy watery fluid mixed with cheesy particles exuded from the opening. A diagnosis of syphilis was made, but treatment aimed at that was useless. Extirpation of the inguinal glands was followed by erysipelas; pus issued from the external auditory canal, and the boy died on March 12, in consequence of hemorrhage from an abscess in the abdominal wall. An autopsy was refused, but a piece of the foreskin and the right inguinal glands proved to be tuberculous. Still more convincing was the confrontation of the circumcisor, who was found to have a beginning phthisis of the left apex, with bacilli in his sputum. The

reporter assserts that since May 1887 he has seen three analogous cases, in which bacilli were present.—*Schmidt's Jahrb.*, No. 215.

The Treatment of Constipation by Means of Massage.

In an article in the *Journ. de Méd. de Paris*, G. BERNE gives five cases of successful treatment of constipation by means of abdominal massage. The writer first states briefly the most important causes of constipation (atony of the muscular layer of the large intestine, imperfect secretion of the succus entericus and of bile, affections of the nervous system, as hysteria, injury to the spinal cord, etc.), and then gives his method of treatment, which is as follows: After kneading the skin and abdominal muscles, a gentle but deep pressure is to be made over the whole length of the colon. Gentle pressure is also to be made above the gall bladder, and in order to accomplish this the patient should bend forwards.

Tumors, foci of inflammation, pregnancy, contraindicate its use. Great care must be used when concretions exist in the gall bladder. The patient should urinate before the massage be applied, so as to facilitate the deep pressure.

The author thinks that the massage over the gall bladder is of the greatest importance, as not only is it emptied of its contents, but the muscles are stimulated and caused to contract. There also exists a reflex action between the intestine and gall bladder. Strong peristalsis helps to empty the gall bladder, and the bile in the intestine increases peristalsis.

The massage should be applied with the most strength over the ascending colon, as here the fæces have the greatest difficulty in being propelled onwards.

The paper ends with the following conclusions: 1st. Abdominal massage is free from danger, and is often curative of constipation, even though the usual medical treatment has failed; 2d. At first massage should be applied daily, and it should last fifteen to twenty minutes; 3d. Natural passages usually occur at the end of the sixth application; the passage occurs soon after the massage has been applied; 4th. The massage of the gall bladder is very strongly recommended; 5th. Massage increases the quantity of the intestinal juices and excites the contractility of the large intestine; 6th. Apart from all reflex action, massage acts mechanically and facilitates the passage of the contents of the intestine.—*Memorabilien*, No. 3, 1887.

Endemic Goitre.

A paper on the above, embodying observations made during a visit of some months' duration to the high table-land of central Asia, N. W. of Cashmere, by Surgeon G. M. GILES, while in charge of the C. K. Mission, was published at Calcutta on December 14th, 1886. This affection is common throughout a large portion of the N. W. Himalayas and Hindu-Kush mountains, and the proportion is at least 5 per cent. of the population. The majority of cases commence about puberty; but no age is exempt from the incidence of the disease. Between 12 and 13 months is the average time of residence for individuals from other districts before a goitre is developed. The prevalence of the affection among these mountains is, in most cases, roughly inversely proportional to the plentifulness of trees; but in one district, almost bare of forest growth, it is even less common than in the well-wooded parts. Now, where trees are plentiful, the rude

cots of the natives are built of wood, and are, perforce, much better ventilated than the dark and close mud-huts of districts where wood is scarce. In the district above-mentioned, which is nearly exempt, notwithstanding the want of wood, the houses are built of stone, and are larger, and, moreover, are well ventilated by the central openings (four or five feet square) in the roofs, which serve the purpose of chimneys. "In spite of all that has been written and sung of the 'bold mountaineer,' the struggle for existence in such regions is so severe, that he is generally much more poorly off than the dweller in the plains, and his house and immediate surroundings proportionately insanitary." The Kashmiri garrison at Gilgit in two years have attained to an average of goitre probably rather higher than that of the indigenous population; and this may, doubtless, be ascribed to the fact that the fort is much the most crowded and insanitary portion of the village. Insanitary homes cannot, however, be more than a predisposing cause of goitre, for the wretched inhabitants of London cellar-tenements live in houses at least as crowded and quite as insanitary as those of the poorest mountaineers of Dardistan. Being on the march, the author's appliances for microscopic research did not go beyond 250 diameters, and he necessarily had no conveniences for culture and inoculation-experiments; but from observations with the 'power' mentioned he is inclined to think that a species of low vegetable organism is the exciting cause of the disease. The general course of a goitre is to go on growing to a considerable size, and then to remain stationary; but a by no means insignificant number of cases, after reaching a certain size, undergo a spontaneous cure. The cysts appear to dry up, and the tumor to contract, leaving a number of nodules about the size of walnuts, and of cartilaginous hardness.

In three months the author treated more than 150 cases by the injection of liquor iodi, B. P. The method of procedure was as follows: "The tumor is first carefully examined, so as to make out the number and position of the various cysts or lobules; the needle of the syringe is thrust into each of these in succession, and about twenty drops of the solution injected. If the lobes are large, soft, and not distinctly cystic, a small dose is injected into two or three portions of each." One skin-puncture only is necessary as a rule; and pain is exceptional, either during or subsequent to the operation. One sitting is often sufficient to cause a cure; but a weekly repetition of the injection will hasten matters. Under this treatment the goitre steadily shrinks, until nothing but a number of hard nodules are left, which, being very slightly vascular, might very well be excised subsequently. The author considers that the treatment involves no appreciable danger if a *watery* solution of iodine be used. —*Bristol Medico-Chirurgical Journal*, September, 1887.

A Case of Pulmonary Regurgitation.

At the meeting of the Clinical Society of London, held on October 14, 1887, Sir Dyce Duckworth, M. D., reported the history of this man:

The patient was a man, aged 49, invalided from the police on account of short-windedness and cough. He came first under care at St. Bartholomew's Hospital in March, 1884, with a history of winter cough for five or six years. He had suffered from several attacks of gout in the feet. He had taken rather freely of beer and rum. His father was a gouty man, and died paralyzed at the age of

sixty. There was no history of syphilis. His complexion was then dusky, and the chest barrel-shaped. There was an increased area of cardiac dulness. At the apex, which was felt in sixth space in left nipple line, was a fairly natural first sound, and a faint, distant murmur; but the second sound was clear. Above the apex and over the whole præcordia a diastolic murmur was heard, loudest over the aortic area. The pulse was jerky and not quite regular. The legs were œdematous. There was no albuminuria. Signs of general bronchitis were detected in the lungs, and on one occasion he spat two ounces of dark blood mixed with mucus. The case was regarded as one of "morbus cordis," aortic regurgitation, chronic bronchitis, and emphysema. In November, 1885, the patient returned to the hospital under the care of Dr. Gee, suffering from aggravated bronchitis and orthopnœa. The heart's apex was impalpable, and cardiac dulness was absent. A diastolic murmur was heard all over the præcordia, loudest over the lower end of the sternum. The pulse was irregular, 50 per minute, of fair volume, and not jerky. The urine contained a trace of albumin. The diagnosis was then "aortic regurgitation, with cough and gout." After two weeks he went out relieved. His third admission was to the John Ward, in Jan., 1887, under Sir Dyce Duckworth. The patient was then very dusky, bloated and dropsical. The jugular veins were turgid. There was much bronchitis, and very little urine was passed. The latter contained one-sixth of albumin. There was orthopnœa and much flatulent distension of the belly. Cardiac impulse was felt in the fifth space, half an inch inside the left nipple line. Very limited dulness was made out on percussion. There was epigastric pulsation. At the apex a systolic murmur was heard, and also in the axilla or lower angle of left scapula. A diastolic murmur was audible at the apex and base, which was loudest down the sternum. It was particularly noticed that the sound was defective in the area of the pulmonary artery. Pulse was 78 per minute, irregular in form and volume, and of increased tension. No collapsing or "aortic" quality was noted. Much bronchitis and emphysema were present. The liver was enlarged. Throughout there was a subnormal temperature. The sputum was copious, not aërated, viscid, and dirty greenish-yellow in color. An attack of gout occurred in the left great toe and instep. Treatment proved of little relief. Increasing cardiac dilatation and œdema of the lungs supervened. Sphygmographic tracings of the pulse were taken with several instruments, and gave no indication of aortic reflux. The patient lingered, slowly failing, till March 6.

At the autopsy the lungs were found emphysematous and œdematous. Pericardium natural; heart very large, with much dilatation, especially of right ventricle. The mitral and tricuspid orifices were dilated. The aortic valves were natural. The pulmonary valves were two in number, one large one, with much thickened edges, and one smaller one, with similarly thickened edges. Between the two was a vacant space, showing some roughening at the site where a third valve should have existed. Below this was an aneurismal pouch, which would have held a large hazel-nut. The ventricular septum was complete. The viscera showed the usual signs of long-continued obstructive cardiac disease. The heart and a drawing of the parts in a recent state were exhibited. It was probable that this was a case of congenital disease of the pulmonary valves, the heart valves only failing in middle life. Sir Dyce Duckworth remarked that it

was perhaps hardly creditable that a correct diagnosis was not made in this case. He had, however, once made a diagnosis of pulmonary regurgitation, which at the autopsy turned out to be aortic reflux, and was thereby made cautious. The physical signs of aortic regurgitation were sometimes more plain in the area of the pulmonary artery, and the most careful auscultators would probably always be cautious in making a diagnosis in these very rare cases. The sphygmograph would perhaps be of the best avail in supporting a suspicion of the disease in any doubtful case.—*Med. Press and Circular*, October 19, 1887.

Relation of Diseases of the Joints to Locomotor Ataxia.

Though the joint affections so common in tabes dorsalis are the best known of all the nervous arthropathies, their relation to the others, their essential differences, and their relation to tabes itself, are still unsettled problems.

In order to clear up, if possible, some of the uncertainty, ROTTER has carefully examined all the available records of cases. From a study of 74 patients, embracing 112 joint affections, he found that their clinical histories presented certain peculiarities.

Severe traumatism was seldom given as a cause. Minor injuries could more frequently be traced. All arthropathies of the lower extremities began while the patients were still able to walk; those of the arms while active motion was but little or not at all impaired. Most of them appeared in the ataxic stage.

According to Rotter, the earliest symptom is usually a painless swelling of the joint and surrounding tissues, subsequent to a serous or sero-sanguinolent exudate into the joint, and a dense œdematous infiltration of the soft parts. Soon crepitation can be discovered, and remains. In benign forms the swelling disappears after weeks or months, and the parts return to the normal condition. In malignant forms there is rapid softening of the tissues with suddenly developing dislocations.

In marked contrast to the slow and painful course of arthritis deformans, tabetic arthitis is remarkable for its painlessness and its rapid course. In addition, the former never leads to such destructive changes.

From the foregoing, it is apparent that, clinically, the tabetic arthropathies are peculiarly independent affections. Anatomically, these diseases develop either as deforming inflammation, or as fractures of the articulations, but the bone destruction attains an extent seldom reached in ordinary arthritis deformans, and never following fractures immediately in healthy people.

The causes of these differences are to be found in the in-coördination of motion, and especially the analgesia, of the tabetic patients; for the analgesia conceals the existence of the joint disease from the patient until swelling, or even dislocation, makes them evident to the eye. Moreover, the analgesia explains the sudden and apparently spontaneous origin of the joint effusions. It can be demonstrated from the clinical histories that the swelling was preceded by certain changes in the joint. The dense œdematous infiltration can be explained by the tearing of the capsule of the joint and infiltration of the neighboring deep connective tissue.

With regard to the alleged increased brittleness of the bones, Rotter shows

that it is not a necessary consequence, but is frequently present. These three factors, analgesia, incoördination and increased brittleness, explain all the variations which arthritis deformans or traumatic arthritis undergo in tabetic persons. It is not necessary that all three factors be present in every case, but analgesia is never absent. The latter can alone cause the peculiarity of the affection, whereas ataxy and increased brittleness must always be accompanied by it.

To these observations of Rotter, with whom in the main he agrees, Sonnenberg has added others, based on a study of 100 cases observed by himself, including about 200 joint affections of all grades of severity. He finds that the type of disease varies much, according to the period of the tabes in which it appears. Those appearing early, without symptoms of inflammation, have no history of injury, and are painless. It is remarkable that the benign forms, those with effusion into the joint and infiltration of the soft parts, almost always develop in several joints simultaneously. Slight causes can change them into the more malignant forms. Sonnenberg is induced to believe that the joint changes bear an intimate relation to the tabetic process, and he particularly emphasizes the not uncommon cases in which the upper extremities, or all the joints, are involved.

In the treatment of such cases, operation is to be avoided, especially in the ataxic stage, and proper apparatus should be adjusted to protect the already affected joints.—*Schmidt's Jarhbücher, October, 1887.*

Bothriocephalus Latus and Pernicious Anæmia.

J. W. Runeberg, of Helsingfors, in a paper read before the Medical Section of the fifty-ninth Congress of German Naturalists and Physicians in Berlin, says that opinions as to the pathogenic significance of intestinal worms change from time to time. They have been thought to produce grave affections of the nervous system, and it is established that they very often cause functional disturbances of the digestive tract, such as diarrhœa. Parasites, which in some cases are without any pathological significance for their hosts, in other cases have resulted in as profound and pernicious disturbances in nutrition and blood-making, as are present in pernicious anæmia.

In the beginning of June of 1886, there appeared an essay by Dr. G. Reyher, of Dorpat, Russia, in which the conclusion was reached, based upon the observation of eleven cases of pernicious anæmia observed by him, that the disease in these cases was caused by the bothriocephalus latus. All of these cases recovered after the worms were expelled.

This essay aroused in Runeberg the greatest interest, because he, as well as Reyher, lived in a district where the bothriocephalus was common, and during the last few years had made quite analogous observations, and had obtained just as favorable therapeutic results. At the beginning he was in doubt as to the significance of the parasite, but by degrees the weight of evidence has led him to the belief that it stands in a causal relation to the evil symptoms of the disease. In 1880, Runeberg reported nine cases of pernicious anæmia, which had been under his care at the Helsingfors clinic. In five of these cases death occurred, in one, at least, from an intercurrent attack of typhoid fever. The prognosis

then seemed to him so gloomy that he prognosticated a probably similar result, at a longer or shorter interval, in the remaining four cases, although for some time marked improvement or seeming cures might occur. Several deaths occurred in the next few years, so that from the beginning of the year 1878 to the middle of the year 1883, Runeberg had a total of nine deaths from pernicious anæmia, one of which, as before stated, was the result of an intercurrent typhoid fever. During this time, in the autopsies which he made, the bothriocephalus was found in most of the cases. At first their presence was regarded as coincidence. In some cases in which the parasite was discovered during life and expelled, the course of the disease was strikingly favorable. The author then began as a regular thing, in every case of pernicious anæmia, to examine the fæces for eggs of the bothriocephalus, and when any were found, which was not always, though very frequently the case, an anthelmintic was given. Since the middle of the year 1883, when this examination became the rule, nineteen cases of pernicious anæmia were treated, and of the whole number of patients only one died. The latter was a man who was received into the hospital in a dilapidated condition, and died the day after admission.

After the anthelmintic was given, the patients were put for the most part upon arsenic and iron, as well as a general strengthening treatment. The favorable results obtained cannot be attributed to the latter treatment, because the same was employed in former cases in which an anthelmintic was not given. Runeberg therefore concludes that pernicious anæmia in general, and particularly in Finland, is always produced by the bothriocephalus or other intestinal worms. On the other hand, cases not rarely present themselves in which other anæmic influences are active, or in which the diagnosis has remained entirely undiscovered. The statistics of the nineteen cases just mentioned are as follows: In twelve cases the bothriocephalus latus was found; in one case the oxyuris vermicularis; in one case the anæmia arose during pregnancy, and was cured after delivery; in four cases no cause could be made out, while in one case, finally, which occurred during the author's absence from the clinic, the patient died, and no records of the autopsy exist. It is certainly very striking that in nineteen cases of undoubted pernicious anæmia, the bothriocephalus was found in twelve, possibly in thirteen, and that the therapeutic results after the use of anthelmintics should be so extraordinarily favorable.

In answer to the possible objection that the same parasite might exist in the healthy also, Runeberg reports the result of an examination, with this purpose in view, of fifty-two patients, in seven of whom the bothriocephalus was found—that is to say, in 14 per cent.—while the proportion of cases of pernicious anæmia in which it was found amounted to 60–70 per cent.

It might also be urged that anæmic patients perhaps offer a more favorable soil for the bothriocephalus, and that their frequency in some anæmic conditions is not so much the cause as the result of the disease. The author meets this objection by saying that no one who has seen the prompt and complete recovery of anæmic patients after the exhibition of an anthelmintic can hold such an opinion. With reference to the final result in the four cases in which the bothriocephalus was not found, it is of interest to note that one died; another had a second attack of anæmia, in 1884–5, for which he sought the hospital; a third remains in

the hospital, improved but not well; while the fourth has been lost sight of since he left the hospital well, at the close of April, 1886.

How far other intestinal worms besides the bothriocephali, can produce similar results, the author is not prepared to say from personal experience, as the taeniæ are rare in Finland; while the oxyuris was only found once in fifty-two cases. The anchylostomata and trichocephali Runeberg has never seen. It would seem probable that these parasites do not act in any specific manner, but simply through disturbance of the intestinal function and irritation of the nerves; and, therefore, that other intestinal parasites could effect similar results. It is worthy of note that pernicious anæmia is most common in regions where the bothriocephalus occurs most frequently, that is to say, in Switzerland, Scandinavia and Finland. However, H. Müller, and Biermer, in numerous observations at Zürich and Breslau, although they say nothing about finding bothricephali at the autopsies, one of them, Biermer, said that in none of his cases were tape-worms or anchylostomata found.

A Case of Acute Red Atrophy of the Liver.

Dr. A. F. Holt, of Cambridge, Mass., read the following paper at a meeting of the Boston Society for Medical Observation, May 2, 1887.

At one o'clock in the morning of November 13, Mrs. M. came to the police station to make a complaint against her husband for beating her. She claimed that he had choked her until she was unconscious; that while he held her on the floor, he jumped on her chest with his knees, and it was only with the greatest difficulty that she escaped from him and ran to the police station, a half-mile or more away, clad only in her night-dress and stockings. The husband was arrested, and at the trial, the following morning, the wife testified that her husband had only held his hand over her mouth. The wife, after the assault, went to the house of her mother, instead of returning to her own home, and there she remained until her death nine days after. For the next four days, she was about the house and the street, and a part of the time, at least, was under the influence of alcohol. During these days, she called on Dr. Church once for examination as to the injuries which she had received from the assault by her husband. At this interview, she complained of soreness in the right chest. Physical examination showed nothing, except a few scratches and a small black-and-blue spot near the sternum. Her pulse and temperature were normal.

On the afternoon of November 19th, Mrs. M. was seen by Dr. Bryant, the city physician, at the office of the Overseers of the Poor, and from him Dr. Holt learned that her age was twenty-nine years; that there was a black-and-blue spot about the left eye, and that the whites of both eyes were jaundiced, and the skin of the chest and abdomen was yellow. She was constipated, had a slight cough, and complained of great weakness. One gramme of calomel was ordered to be taken at once.

November 21. She was in bed and very restless. Hands and feet were cold, and the pulse 108. She complained of constant nausea, and had vomited a great many times since the 19th. Liver-dullness about normal; bowels moved slightly yesterday. One gramme of calomel, to be given in two doses, mustard to stomach, and ice-pills.

At 4 o'clock p. m., the patient had not vomited since morning, and had not spoken since 1 o'clock. Bowels had not been moved. She was unconscious, but very restless. Brandy and milk were ordered every hour, and an injection of warm water.

At 7 o'clock p, m. she was still very restless. No discharge from the bowels had occurred. The temperature was slightly subnormal, the pupils responded to light, and there were slight, crepitant râles at the base of both lungs, but *the liver-dulness had disappeared.* The pulse was rapid and feeble, and the patient had passed no urine for twenty hours. The hands and feet and end of the nose were cold; the skin everywhere deeply jaundiced. The patient continued to fail, and died at 1 o'clock the following morning, or about eight hours after the doctor last saw her. The claim was at once made that death was the result of injuries received at the hands of her husband, and he was arrested to await an investigation. The autopsy was made thirty hours after death, and the following is the record:

The body was fairly well nourished; the pupils a little dilated. There is a black-and-blue spot under the left eye, but there were no other external marks of violence. The skin everywhere was of a bright yellow color. On opening the great cavities, the tissues were seen to be of the same yellow color. The stomach was greatly dilated, and it and the small intestine were distended with gas. On removing the sternum, on its upper third there was seen a large, red spot, caused by the infiltration of blood. The tissues in the anterior mediastinal space were also infiltrated with blood. The pericardium was normal in appearance. The right side of the heart was moderately full of blood. There were a number of hemorrhagic spots beneath the pericardium, along the line of junction of the right auricle and the right ventricle. Two or three of these were of the size of the finger-nail, the others were smaller. Section through one of these spots showed the clot to be of a yellowish color, firm, and nearly the third of an inch thick. The right auricular ventricular opening admitted three fingers. The left side contained a small, black clot. The mitral opening admitted two fingers. The valves of the organ were healthy, and the cavities were of a normal size, and the walls of normal thickness. The muscular substance was of a yellow color, and the cut surface appeared opaque. Microscopic examination showed this tissue to be very granular, and, also, that it had nearly lost its striated appearance.

The left lung was slightly adherent at the top. It was very heavy, and its blood-vessels were full of black blood. A quantity of frothy, bloody fluid could be squeezed from the cut surface. The bronchi were also partly filled with frothy fluid. The right lung was like the left, except it is not adherent, and a frothy fluid flows from the cut surface. In the pleura, covering the chest along the spine from the second to the sixth ribs, on the right side, were a number of black spots, some of which were more than an inch square, but irregular in outline. Section showed these to be due to an effusion of black blood beneath the pleura. Also, beneath the pleura, covering the diaphragm of the right side, there were a number of spots of the same character. The pleura of the left side was everywhere of the same color, and clear and glistening. The tissues about the trachea were infiltrated with blood. Its mucous surface was smeared over with a red, frothy mucus. The mucous membrane of the œsophagus was of a pale, grayish color.

The spleen was large, of a bluish color, and a little soft. The left kidney was of a bluish color, the capsule stripping off readily, the cortical portion being a little thicker and a little paler than normal. The right kidney was like the left, except that the pelvis was a little dilated, and the loose tissues about it were infiltrated with blood. The bladder contained about eight ounces of urine. The vagina was rather large, and its walls were flabby. The mucous surface was of a pale, reddish color.

The liver was found lying in the back part of the abdomen. No blood flowed from the cut vessels. On removal it was seen to be about half the usual size, and very flabby. It was of a uniform, dark-red color. The cut surface was of a lighter red, and after a few moments' exposure it had a glazed appearance. None of its structure could be made out with the unaided eye. It looked very soft, but was fairly firm to the touch. Microscopical examination showed the liver-cells to be destroyed, and replaced by minute, shining granules and molecular detritus.

The gall bladder contained an ounce of dark, thick bile. The stomach was distended with gas, and contained about three ounces of fluid, in which were some solid pieces of food. Its tissue was of a grayish hue. The portal vein and tissues were normal.

This case is interesting for the reason that it is a typical one, both in its history and pathological appearances as revealed at the autopsy, of a fatal disease and also a very rare one, as only about two hundred cases of yellow atrophy have been observed, and as the red atrophy is supposed to be a later stage of the yellow, of course a very much less number of this form of the malady have been studied. The cause of this fatal disease is not well determined. Most of the authors the reader has consulted give mental emotion and the shock that comes as the result of such a disturbance as one of the causes, while others are inclined to the belief that it should be classed as an acute infectious disease; in support of this theory Klebs claims that he has found micrococci in the hepatic veins: this view is also sustained by the pathological changes that take place in other organs, changes such as are found in most acute infectious diseases. This question of cause became a very pertinent one in the case just related. At the judicial hearing in the case of the husband the following question was asked the medical examiner: "If great mental emotion is one of the usual causes of this disease, may not the shock sustained by this woman, resulting from fear, and the severe exposure to cold and wet immediately after the assault, have been its cause in this case?" The opinion given was, that this was not the cause of the disease, and the reasons for this opinion were that the mental emotions referred to by authors as the cause of this malady, if in fact it is ever the cause of it, were the severe forms of grief or fear that produce well-marked effects, such as coldness of the surface, feeble pulse, etc., and this woman at no time showed any such symptoms of shock. There was some question by the physician who saw the autopsy as to whether the hemorrhages about the trachea and beneath the pleura were not the result of mechanical violence. Dr. Holt is convinced from their extensive distribution, as well as their general appearance, that they were not, but were the result of the disease of the liver. This left the question of cause a vital one, for if the fatal illness was the result of the brutal treatment of the husband, then

he must stand accused of murder; if not, that was the end of the case legally. The pathology of acute atrophy of the liver, all authors agree, is a rapid fatty degeneration of the liver cells, but whether the so-called red atrophy is a later stage of the yellow atrophy can be fairly questioned, and for these reasons: The cases of red atrophy are, in Dr. Holt's opinion, the most acute, and run the most rapid course. In this case Dr. Bryant saw the patient on the afternoon of November 19, and she died the night of November 21. In the cases of yellow atrophy when the liver has been reduced to one-half or even one-third of its normal size, it still preserves its yellow color, or at most only presents red patches. It would seem the more probable that the pathological changes in both the red and yellow atrophy are the same, but in the former the disease is the more active and severe, overwhelming the organ at once and destroying its function, while in the yellow atrophy the secretion of bile is not wholly stopped at once, but goes on for a time, and as it is imprisoned in the smaller passages by the swelling, it is reabsorbed and thus the organ is stained. The marvellous shrinking that takes place in the later stage of the disease is undoubtedly due in part to the absorption of the fatty matter, and in part to the absorption of water in the parts of the organ where the circulation has ceased.—*Boston Med. and Surg. Journal*, October 20, 1887.

The Compound Salicylated Plaster in Dermatology.

Dr. Hermann G. Klotz has the following interesting communication on this subject in the *N. Y. Med. Journ.*, Sept., 17, 1887:

The value of salicylic acid in the treatment of skin diseases, particularly of eczema in its different forms, has been so generally recognized by dermatologists that it does not seem necessary to add any further testimony bearing on this question. Among the different means of applying the same, the plaster-mulls of Unna and similar preparations have been acknowledged to possess many advantages peculiar to themselves; the high price, however, has prevented their general introduction, particularly into dispensary practice, where they probably would be the most welcome. Comparatively little has been said or written about the application of salicylic acid in the form of the salicylated soap-plaster, which seems to have been first recommended by Professor Joseph Pick, of Prague, in a paper, "Ueber den Arzneigelatinverband und die locale Behandlung des Eczems," published in 1883 in the "*Prager med. Wochenschrift*," viii. pp. 53–55. Dr. Klotz has made extensive use of such a plaster during the last four years in private practice, as well as in his dispensary and hospital service, and has met with very satisfactory results.

After several experiments, the experienced apothecary of the German Dispensary, Mr. Rutenik, found the following formula to give the best mass:

℞—Emplastri diachyli simplic.,
Emplastri saponati . . . . . āā 40 parts.
Petrolati . . . . . 15 "
Acid. salicylic. . . . . 5 "

Several years' experience has proved the value of this formula, which, about two years ago, was added to the list of remedies regularly prescribed in the Ger-

man Hospital and Dispensary of New York. For use in certain cases, a ten per cent. plaster of the same composition has been prepared. This plaster, to which Dr. Klotz proposes to give the name of the compound salicylic plaster, is of a yellowish-gray color, has no particular smell, and, while fully retaining the qualities of a plaster, is soft enough to be spread readily on linen or muslin by any one not entirely inexperienced in this work. In spreading plasters, patients often commit the error of trying to prepare a small piece of cloth, just large enough to cover the diseased part, instead of taking a large piece at once, which allows the application of greater force and of wider excursions of the hand, and cutting it up into smaller pieces afterward to suit the shape and size of the parts to be covered. It therefore often happens that they complain at first of the difficulties of spreading; as a rule, however, they soon gain in practice, and exhibit well-prepared plasters. The adhesive qualities of the compound salicylic plaster are not very great, and this is indeed its most serious drawback. On some portions of the body, particularly on those covered by the stockings, or other closely-fitting garments, it will not require any further means to hold it in its place; but generally some cover, such as a glove or mitten, a roller bandage of muslin, a piece of cloth, a pair of swimming tights, or a strip of adhesive plaster, will be required to secure it in its position. Hereby its applicability is restricted to certain regions of the body—a disadvantage which it has in common with Unna's plaster-mulls and similar preparations, with the exception of collodium, traumaticin, and perhaps the gelatins; but the latter do not furnish so absolutely dry a surface as has been stated, certainly in hot weather. One great advantage of the plaster is its low price—a point of particular importance in public institutions. Mr. Rutenik has been kind enough to carefully compute the cost of the five per cent. salicylic plaster, as follows: If prepared from the ready-made plasters, one pound costs about 42 cents; if he originally mixes the plasters himself, the cost amounts to only 20 cents a pound. As one ounce will spread over about one square foot, it certainly furnishes a cheap remedy. In private practice Dr. Klotz's experience was at first not so satisfactory, as on the identical prescriptions different patients received widely different substances, sometimes too hard, sometimes too soft, at other times extremely irritating. For several years Messrs. Eimer & Amend, of Eighteenth street and Third avenue, have prepared the plaster in large quantities, and have kept it ready for sale in excellent quality.

The very same reflections that led Professor Pick to the adoption of medicated gelatins in general, and particularly of the salicylated gelatin, induced the writer to take up the salicylated soap-plaster rejected by him. As the paper in question was published in a periodical of not very wide circulation, and as it seems to Dr. Klotz to be of great importance on account of the therapeutic principles proclaimed therein, part of it is cited here:

"The point in question," Professor Pick says, "was to find a substitute for the very efficient but very disagreeable and unpleasant tar treatment. For this purpose efforts have been made to isolate the active principle of tar and to use it separated from the other components. As soon as the different products of the distillation of tar were obtained, they were applied to take the place of tar, but neither resineon, nor resinein, nor carbolic acid, nor others, were able to produce identical effects with tar. Even β-naphthol, which Kaposi but recently believed to possess all the advantages of tar without its disadvantages, can not

be considered a successful rival of tar. Upon inquiry to which peculiarities tar and its preparations owe their excellent effects on the diseased skin, particularly in eczema, it became apparent that first they were excellent antiseptics; and secondly, that by the drying of their resinous components they formed a protecting cover, under which the regeneration of the epidermis could go on without molestation.

"A careful study of the development and progress of eczema will show that the very indications for its treatment are the prevention of septic infection and the protection of the diseased surface from mechanical and chemical injuries until a sufficiently strong epidermis has been formed. Considering the single stages in the development of eczema, we find that really the progressive character of the eczematous process, defined by the smaller or greater exudation on the surface, is limited to the conditions of eczema papulatum and vesiculosum, as well as to eczema madidans, which differs only in the removal of the covering of the vesicles; but that suppuration, the so-called stage of eczema impetiginosum, makes its appearance only when local septic influences complicate the moist stage. Wherever such an event does not take place, the vesicular or moist eczema passes immediately into the squamous stage."

This means that suppuration can and ought to be prevented or stopped, when already developed, by antiseptic measures. The compound salicylic plaster represents, indeed, a very simple form of antiseptic dressing, the place of which it can take under certain circumstances. The salicylic acid being soluble but slowly and in limited quantities, and being not evaporable, retains the antiseptic qualities of the plaster for a considerable period. The mass of the plaster itself forms a non-irritating cover for the surface of the diseased skin, not only protecting it from injuries, but offering several other advantages. Unlike ointments, it prevents effectively the formation of crusts or scales on any moist surface by preventing the evaporation of the secretions, while on a dry or scaly skin it acts similarly to a rubber bandage or cover; it retains the evaporation of the product of the perspiratio insensibilis, and thus forms a kind of permanent bath. It is superior, however, to the rubber itself on account of the aseptic condition of this bath, while under the former, decomposition of the secretions and resorption of septic fluids can easily take place. The formation of a malignant phlegmon has been twice observed under the use of rubber gloves in cases of eczema where the septic resorption had been favored, or rather forced, by the rubber cover. The salicylic plaster keeps the dry and infiltrated skin softer and more pliable, thus preventing its cracking and tearing, so often the most painful and annoying feature of some skin diseases, and Dr. Klotz knows of no other remedy under which rhagades once formed, lose their soreness, and heal in so remarkably short a time; the formation or reformation of the hard inelastic edges being entirely prevented.

The compound salicylic plaster owes a further beneficial quality to the effect of the salicylic acid itself on the removal of the thickened epidermal cover, and the replacement of the same by a new healthy epidermis. While it requires a stronger (at least a 10 per cent.) salicylated plaster to effect such an elimination of thickened epidermis within a short time, and in as conspicuous a manner, the milder 5 per cent. plaster produces a slower and less distinct transformation.

From what has been stated heretofore, it has become evident already that the compound salicylic plaster finds its widest application in eczema. To avoid any misunderstanding, Dr. Klotz states distinctly that, while quite a number of cases of eczema heal under external treatment alone, the plaster does not render gen-

eral and internal treatment unnecessary in other instances. Except the most acute stages of eczema, which probably always require the application of lotions or dusting powders, there is hardly a form of that disease in which the compound salicylic plaster is not borne well, and in the greater number of cases it proves beneficial. There are individual cases where for some reason or other the objective and subjective symptoms of inflammation increase under the plaster; generally, however, the acuteness of the process is not an absolute counter-indication. Recent vesicular and pustular eruptions about the hands and feet heal readily under the plaster, as well as moist eczema of some duration; it is advisable to cleanse the moist surface well with water or a solution of boric acid before making the application. The discharge of serous fluid is not diminished at first; only with the gradually progressing formation of new epidermis will the secretion decrease and finally cease. The beneficial effects of the compound salicylic plaster are not limited, however, to the moist stages; under its protection better than under other treatment the newly-formed epidermal layer gains in strength and smoothness, while the formation of scales and crusts is prevented. The infiltration and thickening of the more chronic forms of eczema yield very often to the softening influences of the plaster, while in some inveterate cases it will require the stronger application of tar, either pure or as an ointment, or in the shape of the alcoholic tincture. As has been mentioned already, rhagades are particularly amenable to the healing influences of the plaster; often one night's application will be sufficient to cure cracks on the fingers, the pain and discomfort from which had for weeks been harassing their unfortunate victims. Naturally the usefulness of the plaster greatly depends on the localization of the eczematous affection. While the face, neck and shoulders, and circumscribed patches on the chest and trunk, allow of its application, while the scrotum and penis can be conveniently protected, the extremities furnish by far the most favorable field for the propitious influences of the plaster. Applied to the hand, and particularly to the fingers, in small straps and covered by a glove or mitten, it allows a moderate use of the member, sometimes sufficient to enable the patients to work; the arms can remain covered all day without change; but more evident still is the advantage of its application to the lower extremities, the most frequent seat of eczema and its consequences among the laboring classes. The plaster and a muslin bandage often enable the patients, who had before been forced into idleness for weeks or months under other applications, to be around and to attend to their business without much pain or inconvenience; and it is particularly among those affected with eczema, and very often ulcers of the leg, that the plaster has been praised and asked for when a relapse of the old evil brought them back to the dispensary after months or years.

Chronic ulcers of the leg, so closely allied to eczema, indeed present a no less meritorious object for the services of the compound salicylic plaster. If small and shallow, they allow direct application of the same after a thorough cleansing and disinfecting; the deeper and more inveterate ones, however, often require previous reduction of the inflammatory conditions by rest and lotions, or stimulation of the indolent surface by caustics or astringents or operative procedures. But once reduced to a granulating surface, and the edges lowered to the same level, Dr. Klotz knows of no better dressing for these ulcers.

Applied after cleansing and disinfecting by a solution of boric acid, or the combined boric and salicylic acids, or by sublimate not over two per mille, and supplemented by one or several layers of absorbent or medicated cotton and a muslin or gauze bandage, a complete antiseptic dressing is produced that may remain unchanged for five or seven days or longer, according to the copiousness of secretion. It is often astonishing to notice the rapid spreading of the epidermal edges over the granulating surface, and the fast reduction of the latter. Not less conspicuous is this effect if such a dressing is applied to skin-graftings, made according to Reverdin's method; after they have once taken root on the granulations, under the protection of the plaster they rapidly increase in circumference. The final result in all such cases will be a much smoother and firmer scar than after dressing with ointments, adhesive plaster, or the rubber bandage. Naturally the compound salicylic plaster may be applied with the same good results to any granulating wound; whether the same originally resulted from an operation or from a burn, from some severe form of dermatitis, the effects of caustics, etc., particularly when under iodoform, sublimate, or other dressings, no more progress toward healing is made. Syphilitic ulcers, especially those of the more superficial type, resulting from pustular syphilides, often do much better under the salicylic than under the mercurial plaster.

The same good results will be gained in such cases where the loss of substance is limited to the epidermis, or to the horny layers of the same, leaving exposed the rete Malpighii, the condition of the skin after the formation of blebs or pustules and the removal of their cuticle in erythematous and impetiginous eruptions in their different forms, herpes and pemphigus. In a very severe case of pemphigus, now under Dr. Klotz's observation, the plaster has proved to be a particularly useful and convenient dressing for very extensive raw surfaces on the back and the extremities; it greatly relieved the suffering of the patient, and favored speedy reproduction of epidermis.

While he has found it useful and convenient as a dressing after the boils have been opened and the core or the diseased tissue has been removed, Dr. Klotz has not observed in the earlier stages of carbuncles and furuncles the same brilliant effects which L. Heitzmann has quite recently attributed to a salicylic plaster of a nearly identical composition with the plaster of the Pharmacopœia of the German Dispensary.

Hydrotherapy in Mental Diseases.

Dr. Theodore R. Varick, in a paper read before the American Neurological Association, after an historical account of early hydrotherapy, says:

Space will not permit a notice of the use of this remedy in mental diseases in past times, but in our own day Dr. Lockhart Robertson, of England, and Dr. Power, of Ireland, were among the first to make a thorough trial of this form of bath in cases of insanity, and to strongly advocate its therapeutic value. In this country the writer, in 1873, while physician in charge of the New York City Asylum for the Insane, made the first extensive trial of this remedy, and reported the results of twenty-two hundred Turkish baths administered in various forms of insanity (*vid.* Wood's "Reference Hand-book of the Medical Science," vol. iv., p. 78). The most useful indications which it fulfils are, first, as a vaso-

motor stimulant in all conditions of capillary stasis as found in the bluish extremities of melancholia attonita, primary dementia, and many secondary forms of insanity with torpid circulation and muscular inaction. The livid and mottled skin in these cases after exposure to the dry heat assumes at first a purplish tint, but after brisk superficial massage practiced centripetally, it takes on a more natural reddish hue. This improvement often remains for some hours after the bath, and in some cases it is permanent, as regards both superficial temperature and circulation. It is indicated, secondly, as a diaphoretic and desquamative agent in certain cases of melancholia in which there is apparently complete suppression of the glandular functions of the skin, which is dry, harsh, and covered with bran-like epidermic scales as if there were furfuratio universalis.

There are apt to be cutaneous paræsthesiæ and tactile illusions in these cases which often get prompt and efficient relief from the bath after the sebaceous and sweat-glands have been restored to activity.

Another most useful purpose of the bath is the passive exercise which the massage supplies in a large number of cases in which active exercise is not practicable. The various movements imparted to all the muscles of the trunk and extremities tend to maintain the muscular as well as the vascular tone, and they probably hasten metabolic changes, though to a less degree than voluntary muscular contractions. In the class of cases mentioned above there is often not only improved circulation and return of a subnormal temperature to the norm of bodily heat, but also a generally increased nutrition and an actual gain in weight. The Turkish bath again is a remedial agent in cases of toxic origin arising from plumbism, hydrargyrism, alcoholism, paludal intoxication, and also in syphilitic, gouty, rheumatic, and certain other diathetic insanities. In these cases the good effects are not due to diaphoresis alone, but the diversion of blood to the periphery from central organs, and to improved circulation, and to hastened absorption and tissue changes. In mania from acute alcoholism the Turkish bath is one of the best means of elimination of the poison from the system. Cool acidulated drinks are to be freely allowed, and a sedative effect, with tendency to sleep and relief of cerebral congestion, often follows the bath.

It is to be understood that nothing like a routine use of the bath is recommended, but that the general condition of the patient and the condition of the respiration and heart's action and bodily temperature, must guide the variations required in each case. General contra-indications are all organic diseases of heart, lungs and nervous centres, and yet in these very instances a mild degree of dry heat, followed by a tepid spray and rubbing, are palliative measures.

Every Turkish bath should be supplied with a narrow needle-spray with numerous very fine jets, which can be projected with great force and readily graduated from cold to very hot water. Such a needle-spray affords one of the most useful counter-irritants known, and when applied over the whole length of the spine, as well as in other special ways, it often effects suprisingly good results. The sudden reversal from hot to cold affords the most powerful vasomotor stimulant, and capillary stasis in stuporous conditions may sometimes be relieved by this means alone, and the stupor, due to a like passive congestion of cortical capillaries, may temporarily disappear. As the needle-spray only acts on a small portion of the peripheral nervous area at one time, it has not the dangers attending the use of the shower-bath.

It has been supposed that patients would oppose the bath, but practically they do not object to it any more than to any other form of treatment, and many of them come to regard it as an actual luxury.

The Russian bath is taken in vapor ranging from 95° to 110° F. (and if the amount of vapor in the air is small, a temperature of 130° F. even may be borne), followed by a shower or plunge-bath. It may be roughly improvised by placing the patient in a chair or a bed, with hoops covered by a blanket, under which vapor is conducted. This form of bath is a strong nervous stimulant, increasing arterial action and diaphoresis, diverting the blood to the surface, and answering in the main the same indications as the Turkish bath.

The Roman bath is a desirable modification of these forms, by inunctions practiced after the exposure to dry or moist heat. Vaseline, cocoa-oil and various unctuous substances may be rubbed thoroughly over the whole surface, to which they impart a most pleasing sense of softness and elasticity. The effect is often felt for a whole day, and in cases of melancholia, with the dry and furfuraceous skin above mentioned, it most effectually answers the indications.

The value of processes of anointing seems to have escaped modern attention, though it was fully recognized in the practice of Eastern nations for many centuries, and its physiological ground is the influence exerted on the immense peripheral expansion of the cutaneous nervous system. The Roman bath of ancient days was one of the most practical and perfect ever devised, and it is a question whether it would not prove most useful if employed in nervous and mental diseases.

The Roman bather removed his garments in the mild air of the "apodyterium," and was anointed with oil and passive movements of the joints were made in the "unctuarium;" he then played at various kinds of games in the "spheristerium" until gentle perspiration began, and he then completed the sweating process in the "caldarium," with graduated seats rising to a high degree of dry heat. He was then scraped and rubbed down, and again anointed with fine oil, and then finally passed into the "tepidarium" to recline a few final moments, and cool completely before passing into the open air. There is no such perfect sequence of physiological changes for patients treated by modern balneotherapeutics.

Of the use of the ordinary forms of baths something will now be said, and a remark generally applicable is that the best time for bathing is when there is within the system the most reserved nervous energy. If strength has been spent in active exertions, or if food has not been taken for many hours, or if sleep has long been absent, it is a bad time for bathing. In most cases there is the most stored vital force after the night's rest, and as soon as the morning meal has been digested.

Cold-water baths range from 40° to 60° F., and their immediate effects are capillary contraction, increased arterial tension and cardiac action, and congestion of internal organs. If brief and followed by reaction, they are stimulant and tonic, but otherwise they are depressing. Their chief employment is in conditions of hyperpyrexia, as it sometimes occurs in certain phases of general paresis following the status epilepticus, in puerperal mania and fever, in typhomania, and in rare instances of acute delirious mania.

The reduction of temperature by the cold-bath is an heroic proceeding, to be

undertaken in these cases, however, without hesitation, while carefully watching the pulse and the state of the thermometer placed in the rectum.

Cool baths vary from 60° to 75° F., and they are used to reduce temperature, or simply for the sake of reaction, and to allay nervous irritability. Comparatively feeble patients may take them, if they are lifted immediately from the warmth of the bed to the water and returned to warm coverings after three or four minutes.

All sudden applications of cold to the surface are to be avoided in confirmed heart disease, atheromatous cerebral arteries, or advanced diseases of internal organs.

Tepid baths from 80° to 95° F. are useful to allay the irritability of the sensory nerves of the skin, and to relieve the perverted peripheral sensations from which many insane patients suffer. They are one of the first means to be tried to procure sleep in all cases before resort is had to powerful drugs.

Prolonged warm baths, having a temperature from 90° to 100° F., have had an extensive trial in psychiatry. From Pinel and Esquirol down to Brierre de Boismont, Luys, and other French alienists, they have continued to be employed for the cure of acute cases of insanity. In Germany, too, they have been used, more especially in acute cases of sthenic mania. Their duration may vary from one to several hours, and they have even been extended for days, but with doubtful propriety, owing to an element of danger not always to be foreseen, for cases of death from syncope have been reported under these circumstances. While the patient is in the bath, cold applications are to be made to the head by wet cloths or a small stream of water.

Hot baths from 100° to 105° F. are chiefly used for their vaso-motor stimulant effects in angeioparetic conditions with subnormal temperature. They are necessarily of brief duration, and they cause capillary dilatation, increased heart action, and hasten changes of nitrogenous tissues and elimination of urea just in proportion to the general rise of bodily heat, which of course, accumulates much more rapidly in hot water than in hot vapor or air. They are contra-indicated in cases of weak heart or arteries, and in locomotor ataxia and other organic spinal diseases.

Graduated baths are to be reduced slowly from 98° to 60° or even 40° F. in some cases. This reduction of temperature may be effected by pieces of ice, but it is better that cold water be introduced and uniformly distributed to avoid local and sudden sensations of cold. Thermometers graduated and mounted in wooden handles for this purpose are to be had.

The graduated bath is the most acceptable and the most prompt means of reducing bodily temperature in alcoholic mania, in delirium acutum, in the status epilepticus of epileptic insanity, and in acute cases of sthenic mania.

The acutely maniacal patient with high temperature, bounding pulse, pulsating carotids, suffused conjunctivæ and cerebral congestion, is wrapped in a sheet and lifted into the bath, and cold applications are made to the head. The water is gradually reduced to the lowest degree at the end of twenty or thirty minutes, if there has been no indication from the pulse, temperature, or respiration for the removal of the patient before that time. The graduated bath may be repeated many times with advantage during the twenty-four hours. The re-

lief is sometimes remarkably evident from the very first bath, and some cures have been accomplished by the end of the third or fourth day of this treatment.

Wet packs have been much employed, and have been spoken well of by Leidesdorf, Maudsley, and many others. The wet sheet is carefully folded about the nude patient, so as to come in contact with every part of the surface, and blankets are then wrapped closely about the patient, who reclines thus covered five or ten minutes if simple reaction is desired, or five or six times as long if diaphoresis is sought. If reduction of temperature is the object to be accomplished, the pack is to be renewed every ten minutes.

This procedure is not only antipyretic but sedative, and employed in hysterical and hypochondriacal cases with extreme irritability of the cutaneous nervous system. It also favors sleep by allaying general excitability, and arresting for the time being muscular over-exertion. In fact, one objection urged against it is that it is, or may be made, a most effectual means of restraint. Some patients accept this form of confinement as a medical measure, while they would strongly reject mechanical restraint, and it is of double value on this account in certain cases. Hot as well as cold packs may be used in asthenic cases of melancholia; and by restoring capillary circulation and the normal bodily temperature, much good is sometimes effected. The rubbing wet pack is the thorough friction of the patient through the wet sheet, followed by rapid drying of the surface. It is to be used where a specially prompt reaction is required. There is a form of wet pack which approaches in fact an affusion, and is indicated in puerperal mania with high temperature, and may be employed advantageously in other cases as an antipyretic measure. The patient, wrapped in a sheet covered with blankets, is placed on a corded bedstead, under which is stretched a rubber blanket to catch the water, which ranges from 65° to 75° F., and is hourly poured over and saturates the sheet. The patient may remain for hours in this pack, with warmth to extremities, if need be, and can be nourished or stimulated if necessary during the reduction of temperature, which is to be repeatedly tested in the vagina or rectum.

The actual cold affusion was formerly used in France and Germany, and Esquirol alleged cures by its use; but it is too severe a remedy except in certain cases of hyperpyrexia, in which it is one of the most powerful means for the reduction of bodily heat. Its occasional use at the present day in hysterical cases is not unfamiliar.

Shower-baths, from a few seconds' to several minutes' duration, are to be very cautiously employed, even in vigorous patients. In stuporous states a shower of five or ten seconds daily will sometimes improve the vaso-motor and the physical condition, and in hysterical insanity this application of water is beneficial at times. The hot shower to the lower extremities simply, in dementia with impaired capillary circulation and cold feet, may be used to advantage. The mechanical as well as the thermal action of the shower-bath is to be borne in mind.

Douches, tepid, hot, or cold, answer a good purpose. They may be improvised by pouring from a kettle with a spout, or by placing a vessel at a height, and using rubber tubing as a siphon for withdrawing and directing the water upon the patient, who is placed in a bath-tub or upon a rubber blanket. The stream may

fall several feet, and its force and size must be carefully considered in the effect to be produced. The most susceptible points are the crown of the head, the sides of the neck, and the epigastric region. In states of mental depression and in conditions of stupor, temporary improvement of respiration and circulation may be observed after the use of a half-inch stream of hot water allowed to fall three feet upon the whole length of the spine. Also in cases from sexual and alcoholic excess the hot spinal douche is a most useful remedy, as well as in choreic insanity. In this form of spinal douche the water should be as hot as can be borne, so as to conjoin the thermic and mechanical influence. Sitz-baths and foot-baths are employed in insanity for their familiar effects.

The hot foot-bath, with or without mustard, accompanied by cold to the head is a good sleep-producing remedy in cerebral hyperæmia. Full mustard-baths, with three to six ounces of mustard in from thirty to sixty gallons of water have been used by Newington in England and Ball in France. The genital organs are to be protected from the action of the mustard by covering. The favorable influence of these baths on the cutaneous circulation and in the relief of cerebral congestion is said to be decided. The physiological fact of the contraction of cerebral capillaries on the irritation of cutaneous sensory nerves was proved by Baumschiedt in experiments on animals.

Many patients are too feeble for or too much opposed to the more general applications of water above described, and more local measures are then to be used.

Thus, for the reduction of temperature, sponging of the surface with cold water or cold enemata are in order. Tepid sponging allays irritability and favors sleep, and the use of spirits in the water or of bay-rum about the head and face and neck is soothing, and may make the difference between a restful or a restless night on the part of the patient.

In some cases Chapman's ice or hot-water bags may be used with advantage to the spine. In melancholia with sub-normal temperature and wiry pulse, and cerebal anæmia from a spastic state of the cortical vessels, sleep may be procured by the hot spinal bag. In maniacal conditions with angeioparesis the cold spinal bag is often useful to relieve insomnia.

Cerebral anæmia or hyperæmia, in whatever forms of insanity found, afford indications for the direct applications of heat or cold to the head.

The ice-cap and the rubber-coil cap for the continuous flow of cold water are the most practical.

It is not necessary or desirable to shave the head in women, except in acute meningeal inflammation.

In typhomania, mania à potu, acute stages of general paresis, and puerperal mania, this local abstraction of heat may be continued with good results for hours or days together. Other useful local applications are hot stupes to the epigastrium to promote sleep, or hot flannels to the feet and legs and cold wet cloths to the head for the same purpose.

In the high temperature of paretics after epileptoid seizures, frictions with ice are most efficient.

Finally, the use of salt water calls for a few remarks. For feeble patients with dementia and melancholia local frictions with cloths moistened in a solution of bay-salt are good cutaneous stimulants. For those that are strong enough, warm

brine baths (five pounds of rock-salt to fifty gallons of water) may be employed to stimulate the peripheral nerves and the general circulation. Sea-bathing is an excellent means of procuring a lively reaction in strong patients. Surf-bathing especially is powerful for good or evil. The impact of the waves is a species of rough massage which is as depressing in the feeble as it is exhilarating in the robust. A patient with hypochondriacal insanity, whose insomnia resisted all the usual drugs, only slept soundly after an hour's rough surf-bathing; and if sea-baths were more available, they would doubtless prove of decided benefit in many cases of insanity.

To sum up the conclusions of this paper briefly, it may be said that the indications of hydrotherapy in mental diseases are to control bodily temperature, to stimulate local and general circulation, to produce diaphoresis and the elimination of certain substances through the skin, to hasten tissue changes and to improve general nutrition, to allay irritability of peripheral nerves, to procure sleep and relieve cerebral anæmia and hyperæmia, and in a measure to take the place of drugs.

Balneotherapeutics in insanity is admittedly only employed empirically as yet, but it is becoming a more exact science, and indispensable in the treatment of mental diseases, and it deserves a much more extended employment than has yet been accorded it in this country.

It is hoped that this paper may excite some further interest in this subject.—*N. Y. Med. Journal*, Oct. 15, 1887.

Some Complications of Chronic Endarteritis.[1]

Dr. William Buckingham Canfield, member of the American Academy of Medicine, chief of clinic for throat and chest diseases, University of Maryland, Baltimore, in a paper on this subject says:

The diagnosis of endarteritis chronica deformans, at its onset, is perhaps made only when a sudden complication makes it too apparent. As to its probable cause—whether gout, syphilis, chronic lead-poisoning, abuse of alcoholic drinks, chronic narcotism, etc.—we are often unable to speak with certainty for a single one. In its varied course and insidious approach, chronic endarteritis makes itself known by the hardness, inelasticity, and tortuousness of the superficial arteries, slowly creeping on from centre to periphery of the vascular system; or, its progress backward to the heart may cause another train of symptoms. In the latter case the sclerosis of the aorta becomes a

Sclerosis of the aortic valves, and the attention is attracted by a systolic or diastolic murmur heard over the aortic area, and by an enlarged left ventricle. In the great majority of cases the important etiological factor in acute endocarditis is acute articular rheumatism, and, indeed, so often is this the case, as we know, that one of the first questions asked of a patient with valvular trouble is, if acute rheumatism has ever preceded this attack of heart disease. But the two important points in the diagnosis between endocarditis from acute rheumatism and endocarditis from endarteritis is that in the former the mitral valve is by preference affected, and in patients generally under forty years of age; whereas

[1] Read as an admission paper before the Baltimore Academy of Medicine, April 19, 1887.

in the latter case chronic endarteritis attacks those over forty, and spreads by contiguity from the aorta to the nearest valve, the aortic, and even if the mitral valve is here affected, it is in company with the aortic valve, whereas after acute rheumatism the mitral is often alone affected.

Another complication is an affection of the aortic valve, due to sudden over-distention of the heart. Peacock[1] made the first important communication on this point. He reported cases of incompetency of the valves from hard work, stretching the valves, as well as cases of direct injury from sudden strain. Albutt[2], and later Myers[3], published papers on the same subject, from cases observed among soldiers. In many treatises, monographs and works on diseases of the heart, this subject has received scarcely more than a mention. Seitz,[4] Foster,[5] Fraentzel,[6] Da Costa,[7] Flint,[8] Quain,[9] and a few others have given more or less detailed accounts of this affection, but it was not until this past year, when Leyden[10] published his painstaking and interesting article, that the subject has been exhaustively treated. He says that the connection between arterio-sclerosis and bodily over-exertion has not been proved, but it is very probably true.

The working classes are particularly prone to this, and the men naturally more than the women. In this case the stiffness and incontractibility of the sclerosed vessel offers too much resistance to the column of blood thrown on it during a violent exertion, and the blood being forced back into the already full left ventricle, causes a sudden distention, with rupture of the aortic valves. In this case we find insufficiency, and occasionally stenosis of these valves.

A third and frequent complication of arterio-sclerosis is aneurism. This com plication may be a sequela of the preceding one. The aorta is atheromatously degenerated, and the left ventricle is hypertrophied. In this condition of things a powerful effort of the hypertrophied left ventricle forces the blood through the aortic valves and upon the aorta, thus causing an aneurism. And even before the sclerosis has extended to the heart, a sudden and violent exertion, as in the majority of cases, causes an aneurism in the atherosed aorta in that part which, by virtue of its position, has the greatest strain brought upon it.

The exact definition of the term aneurism is not always clear. Richet[11] says

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[1] Peacock, Thos. B.: On the Prognosis in Cases of Valvular Diseases of the Heart. London, 1877.

[2] Albutt, Thomas Clifford: Ueber die Folgen der Einwirkung von Gewalt und Ueberanstrengung auf das Herz und die grossen Blutgefässe. London, 1873.

[3] Ueber die Häufigkeit und die Ursache von Herzkrankheiten bei Soldaten. London, 1870.

[4] Seitz, J.: Die Ueberanstrengung des Herzens. Berlin, 1871.

[5] Foster, Balthazar: Clinical Lectures on Rupture of the Aortic Valves from Accident, Medical Times and Gazette, December 13, 20, 1873.

[6] See American Journal of the Medical Sciences, January, 1886, p. 97. Quoted by Delafield.

[7] Da Costa: Memoirs of United States Sanitary Commission, p. 372, American Journal of the Medical Sciences, 1871.

[8] Flint: Practice of Medicine.

[9] Quain: Lumleian Lectures, Medical Times and Gazette, 1872, p. 352. Quoted by Delafield.

[10] Leyden, E.: Ueber die Herzkrankheiten in Folge von Ueberanstrengung. Zeitschrift für klinische Medicin, Band xi., S. 105.

[11] Richet, Jaccoud: Nouv. Dictionnaire de Méd. et de Chir. prat., t. ii.

that many aneurisms are due to a dilatation of the vessel without a pathological change in the coats, and that the destruction of the sac does not take place until a long time after the distention.

Cornil and Ranvier,[1] on the other hand, carefully point out that it is not the result of a single mechanical action upon a healthy vessel which caused the distension, but that these aneurisms are always developed in vessels which have been for a long time the seat of inflammation. Dr. Wilks[2] considers the terms "aneurism" and "dilatation" as expressions of degree, and also seems to be of the opinion that the larger vessels are generally first diseased and then distended, and this without any reference to the number of coats involved.

The microscopical examination of the aneurismal walls of the aorta does not always give satisfactory results. The three coats are supposed to take part in the formation of an aneurism. Ranvier and Cornil,[3] however, have stated that an aneurism of the aorta consisted of the interna and adventitia only, the media having entirely disappeared. I have noticed in specimens that the three coats could be recognized in that part of the artery bordering on the aneurism, but in the aneurism itself the separation between the coats was not clearly marked, notwithstanding the fact that in one specimen the aneurism had just begun to form, the patient having died of an intercurrent disease. Birch-Hirschfeld[4] says that on the border of an aneurism of the aorta the three coats can be distinguished, but toward the middle of the tumor the media disappears first and then the interna and adventitia cannot be distinguished, and, indeed, there is often only a hyaline layer in place of the three coats.

Having once found a pulsating tumor of the chest, the diagnosis of aneurism is not so difficult, as a non-aneurismal tumor of the chest is extremely rare. The difficulty is to find out its exact site. Da Costa[5] says we can do little more than conjecture the position of a thoracic aneurism, because a tumor within the chest leads to such displacements that its relations to the surrounding parts cannot be clearly ascertained during life. The most valuable information we can obtain is from a study of the physiological changes from the symptoms of disturbed function. Indeed, the correctness of our conclusions will depend almost entirely upon that of our interpretation of these symptoms.

The following case, which came under my care, is interesting on account of some of the signs and symptoms noticed. The meagreness and incompleteness of the history, however, is due to the fact that the patient failed to reappear, and thus escaped an inevitable post-mortem, which would have confirmed or corrected the diagnosis:

Mrs. B——, aged 47, a pale, spare woman, rather under-nourished, came to me complaining of inability to use her voice, and wished to have a supposed laryngitis and bronchitis treated, which she said she had had for some length of time.

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[1] Cornil et Ranvier: Manuel d'Histologie pathologique, t. i. Paris, 1884.

[2] Fagge, Charles Hilton: Principles and Practice of Medicine, vol. ii.. p. 840 ff. Philadelphia, 1886.

[3] Ranvier et Cornil: Contributions à l'hist. norm. et path. de la tunique interne des artères et de l'endocarde, Archiv de Physiologie, t. i., p. 551.

[4] Birch-Hirschfeld: Lehrbuch der pathologischen Anatomie, Band ii., S. 98.

[5] Da Costa: Medical Diagnosis, fourth edition. p. 388.

She complained of pain in the left side of the chest and left arm, and said that her heart "fluttered" very much, and seemed to rise up in her throat when she was excited. She was decidedly short of breath, and spoke scarcely above a whisper. On examination a pulsating tumor was observed at the left sterno-clavicular articulation, and was very perceptible to the eye and hand. The tumor she said, came suddenly after exerting herself during a convalescence from typhoid fever. The following points were obtained: Pain over the cardiac region, especially on pressure, dyspnœa, dysphagia, occasionally œdema and want of sensibility on the left side, displacement of the trachea to the right side. There was also dilatation of the left pupil, almost complete absence of the right radial pulse, and absence of aneurismal bruit in the right carotid and subclavian arteries, which bruit, however, was audible on the left side. The diagnosis of aneurism was at once made, but the exact site could not with certainty be determined. On palpation and percussion the heart was found to be higher than normal, the apex being in the fourth intercostal space and to the right of the left nipple, near the sternum—that is, directly above its normal position. There was apparent to the eye and hand much palpitation. Percussion was extremely painful. On auscultation the heart-sounds seemed to be much quickened, but otherwise normal in character. She had complained for some time of a dry cough and of hurried respiration after the slightest exertion. On questioning her, she said that by her first husband she had had two miscarriages and one child, since dead. She had had sore throat (a not unusual occurrence), and her hair had been coming out. She did not remember having had rheumatism. Although there may not be sufficient proof that her trouble was of syphilitic origin, still, without making a diagnosis as to the cause, iodide of potassium with syrup of the iodide of iron were exhibited in gradually increasing doses. After several weeks under this treatment the mydriasis disappeared, the swelling was apparently reduced in size, and her voice returned for a short time.

The history of the case, unfortunately, stops here, as she passed out of my care while I was absent from the city, and has probably succumbed long since to the aneurism, the exact position of which can be conjectured only. Before reviewing the symptoms and signs present in this case, it might be well to glance at some of the statistics on aneurism.

The following figures from Lisfranc[1] give the number of cases collected by him for different ages:

Age, Years.	Number of Aneurisms.
13	1
15 to 20	3
20 to 30	17
30 to 40	29
40 to 50	37
50 to 60	17
60 to 70	3
70 to 80	3

Much more numerous are the statistics for the different vessels. Thus, Hodgson[2] reports the following cases:

[1] Lisfranc: Article Aneurysme. Nouveau Dict. de Méd. et de Chir. prat. t. i.

[2] Hodgson: Treatise on the Diseases of Arteries and Veins. London, 1815.

Ascending aorta, arch, and innominate artery	21
Descending aorta	8
Carotid	2
Subclavian and axillary	5

Of the 551 cases of Crisp[1] there were of the

Thoracic aorta	175
Abdominal aorta	59
Subclavian artery	23
Cartoid artery	25
Popliteal artery	137

These were in part distributed as follows:

Age, Years.	Number of Aneurisms.
20 to 30	71
30 to 40	198
40 to 50	129

In the London Museum[2] the collection of aneurisms is as follows:

Thoracic artery	207
Abdominal artery	42
Popliteal artery	50
Subclavian artery	12
Carotid artery	9

In Sibson's[3] collection there were 880 aneurisms of the aorta, 703 of which were of the thoracic aorta, and distributed as follows:

Ascending aorta (including 87 at the valves of Valsalva)	193
Arch	120
Descending aorta	72

Lancereaux,[4] Baillu,[5] Hayem,[6] and all others agree that the thoracic aorta is most frequently the seat of aneurism. Crisp[7] also says that the anterior and right side of the aorta is most frequently affected, and that the cause is a sudden and violent contraction of the heart. All authors agree that men are more liable than woman to this form of aneurism, and naturally, on accout of their occupation. The proportion may be stated as about one woman to eight men.

In reviewing the different signs and symptoms, in the endeavor to interpret them, some light may be thrown on the situation of the aneurism.

Pain.—The pain was felt on the left side and down the left arm. It was probably due to the pressure of the aneurism on branches of the brachial plexus, and also to pressure caused by general œdema.

Dyspnœa.—This might be due to several causes: (1) simply to a diminution in the size of the thoracic cavity; (2) to pressure on the left bronchus or trachea; (3) to pressure on the recurrent laryngeal nerve of the left side, in which case we should have a neurotic dyspnœa. As no laryngoscopic examination was made,

[1] Crisp: Diseases of the Blood-Vessels. London, 1847.
[2] London Museum Reports.
[3] Sibson: Medical Anatomy. London, 1869.
[4] Lancereaux: Traité historique et pratique de la Syphilis. Paris, 1866.
[5] Baillu: Morbid Anatomy.
[6] Hayem: Medical Dictionary, 1839.
[7] Crisp: Loc. cit.

it might be supposed that the three causes were present. From her manner of breathing and the size of the aneurism, I am inclined to think that the last two causes were present.

Œdema.—This was undoubtedly caused by pressure on some venous trunk, most probably the innominate vein.

Mydriasis.—The mydriasis was caused by pressure upon a branch of the cervical sympathetic (cilio-spinal). This agrees with several other points in the history which go to show that the aneurism had not grown to a very large size. The fact that the pupil on the left side was dilated would tend to show that the fibres of the cervical sympathetic going to the musculus dilatator pupillæ were simply irritated and not destroyed, in which latter case the pupil would be contracted, since the oculo-motorius and sphincter pupillæ would have no opponent. The cases reported recording an affection of the pupil generally refer to a contraction, and not to a dilatation, of the pupil. Gairdner[1] reported a case of aneurism of the aorta which projected up into the neck, causing a contraction of the pupil on the affected side. But on further noticing this case it seems that the patient was taking large doses of opium, which certainly could not fail to have an effect on the pupil. Robertson[2] reports a case of division of the cervical sympathetic, with contraction of the pupil on the affected side. Dr. John Reid[3] was the first to point out this inequality of the pupils in case of tumors of the neck interfering with the cervical sympathetic:

Hurried respiration.—This was caused by pressure upon the left pneumogastric nerve, which pressure also caused the increased rapidity of the heart-beat.

Dysphagia.—This may be explained on the same ground as the pressure on the trachea.

Want of sensibility on the left side.—This was probably due to the œdema, as well as to the pressure on the sensory nerves.

Almost complete absence of right radial pulse.—This is the most difficult sign to understand. Generally the radial pulse on the affected side is indistinct or absent, and in this case we must either record this sign as an exception which may possibly occur, or try to show that the aneurism extended in some way over to the right, or was actually situated on the right side of the thorax, in spite of all the apparent proofs to the contrary. Crisp[4] says, if there is an obstruction to the circulation in the subclavian or innominate artery, there is usually a difference in the pulse of the two sides of the body, the radial pulse of the affected side being less distinct. If, however, the arteries contain no fibrinous deposit, and their calibre be not diminished, the pulsation on the affected side may be stronger.

The condition of the heart.—The valves were found to be normal, and the ventricles apparently not hypertrophied. This is a rare condition in case of an aneurism of the aorta, especially of the ascending and arched portions. In many of such cases reported, the aortic valve was affected. Key,[5] in speaking of the

[1] Gairdner, W. T.: Edinburgh Medical Journal, July, 1855, vol. i.

[2] Robertson, Argyll: Edinburgh Medical Journal, February, 1869.

[3] Reid, John: Edinburgh Medical and Surgical Journal, 1841.

[4] Crisp: loc. cit., p. 129.

[5] Key, Axel: Medical Times and Gazette, June 4, 1879, vol. i.

reaction of aortic aneurism on the heart, says he has not yet met with a case in which an aneurism of the aorta produced a hypertrophy of the muscular substance of the left ventricle, and in another report[1] he found an aortic insufficiency in four cases out of seventeen, and no case of stenosis; and his deduction was that if the valves were healthy the aneurism exerts no influence on the heart.

This review of the signs and symptoms, together with the age of the patient, her history, and the above statistics, would point to an aneurism whose probable seat was in the aorta. As an aneurism at the valves of Valsalva produces so few symptoms, and so easily escapes detection, this part may be eliminated. The ascending aorta may be excluded, because an aneurism here would in all probability be on the right side; and even if an aneurism of the ascending aorta were present, and the aneurismal sac pressed over the left side of the heart, causing the symptoms related, there would be a bruit or throb in the right subclavian or carotid, which the history shows was absent. The descending aorta may also be excluded; and as the left side was principally affected, it was most probably (unfortunately it is not certain) an aneurism occurring at the anterior and inferior portion of the left part of the arch, opposite to where the left carotid and subclavian are given off. Of course such a diagnosis can be based upon hypothesis alone.

In looking at the etiology of this case, it would not be right to deduce that, because the iodides caused a general improvement, therefore the cause was specific. That the iodides do cause an improvement in many such cases has been witnessed lately by Huchard,[2] of Paris. He records a number of patients suffering from atheroma of the arteries, and chronic arteritis, as well as valvular trouble from atheroma, in all of which amelioration and recovery were brought about by the use of the iodides, and particularly of the iodide of sodium. He says these were true cases of organic heart trouble, in patients not anæmic. He also particularly affirms that the iodides, in his experience, are not efficacious in every form of valvular disease, but only in chronic so-called sclerotic inflammation of the lining membrane of the heart and the arteries.

The Scarlet Fever Epidemic: A Forecast and a Suggestion.

Mr. Robert William Parker, Surgeon to the East London Children's Hospital, writes to the *British Med. Journal*, Nov. 5, 1887:

The present epidemic of scarlet fever, occurring, as it does, very largely among adults, appears to me to be one of the necessary outcomes of the careful isolation of infected persons which has been practised in recent years. I venture to think that the more carefully isolation is practised, the more frequent will epidemics become, and the greater will be the proportion of adults affected. For soon among the adult population there will be a very large number of persons unprotected by a previous attack of the disease, and therefore a large number prone to succumb when epidemic influences are rife. Should isolation continue to be successfully practised, we may look forward to a time when the population will, to all intents and purposes, be "virgin soil," in which the *materies morbi* will propagate

[1] Key: Hygeira—Proceedings of the Swedish Society of Physicians, p. 285.

[2] Huchard, Henri: Bulletin Général de Thérapeutique, t. cxi., p. 302.

itself with great intensity. The first outbreak of measles which occurred in the Fiji Islands will doubtless be fresh in the minds of many persons, for the disease was characterized by great virulence and a high mortality. Now, although I think the question of "virgin soil" is one not likely to trouble the present generation, still the strict isolation of infected persons is certainly bringing about an increasing number of persons liable to be attacked by this and kindred fevers, and it is a circumstance which should occupy the attention of those authorities who have to provide accommodation for fever patients. I cannot doubt that their difficulties will increase, rather than decrese, as time goes on. I think the fevers will tend to occur in epidemics, that will become severe and occur very largely among the adult population. It is a matter of experience that the exanthemata run a severer course in adults than in children, to say nothing of the great inconvenience which adults experience in being shut out from their duties and occupations without warning or time to make needful arrangements. The question has frequently passed through my mind whether it is really a wise thing to try and escape an attack of measles or scarlet fever, seeing how often escape merely means postponement—postponement from childhood, perhaps, when the fever may be gone through with comparative ease and comfort, to adult life, with all the inconveniences, anxieties, and additional dangers which advancing age entails. As far as my own experience goes, scarlet fever, except in its malignant forms, is not a dangerous disease, provided it be carefully treated from the first. The malignant forms ought to be most carefully isolated and under the control of thoroughly skilled practitioners. I believe, however, that far more mischief arises from neglected mild cases (which are many) than from the malignant cases (which are few). In the majority of cases a mild attack of fever, if the infection spreads, begets a mild form in those to whom it spreads, although the contrary occasionally happens. I will not go so far as to say that children should be actually exposed to contagion, but I feel sure that their removal from an infected house often fails to save them from the fever, while it materially favors the spread of the disease among neighbors, friends, and relations. Under the old *régime* the children of a family went through the disease one after another, and so got probable immunity for the rest of their lives. By all means isolate a house when infection breaks out; keep it there until it has exhausted itself, and adopt every known precaution in the way of disinfection afterwards. I am inclined to doubt the advantage of removal, especially in the case of children, and believe that the insistence on early and continuous therapeutic measures, rather than on purely preventive ones, will, in the long run, prove of greater service to the individual, as well as to the public.

Diseases Classified as Tabes Mesenterica.

Dr. Gairdner, in his fourth lecture upon this subject, says, with reference to the practical considerations of the question, that in the first class of cases the abdominal swelling occurs as either absolutely or very nearly the first symptom of ill health; it may be without appreciable pain or uneasiness, or, at least, with pain so slight as to be practically overlooked. There may be no diarrhœa at any time, there may even be constipation. The tongue may be clean, the appetite fairly good. It is, however, not usual for the disease to last long under such

circumstances, without a notable change in these respects, and without an appreciable degree of emaciation. The temperatures may present every possible degree of variety, they may even be entirely undisturbed throughout. More usually, however, the evening temperatures, on the whole, are relatively elevated as compared with the morning, be it ever so slightly. In some cases there is a pretty regular diurnal oscillation of one or two degrees or more, the evening temperatures being to this extent in excess of the morning, which may or may not slightly exceed the normal. In such cases, and when the strength and bodily condition are well maintained, the prognosis may be pronounced relatively good, even when the physical lesions in the abdomen are quite well defined. And if under these circumstances evidences of moderate fluid effusion occur, followed by increased resistance and dull percussion over the middle abdomen, still there is no reason to despair of effecting at all events a practical, if not an absolute cure. It is quite unusual for the amount of fluid to become such as to raise any question of paracentesis. Indeed, he can only remember in eleven years' experience in the Western Infirmary, two or three cases where the question of surgical interference presented itself in a practical shape. In two of these, at least, the operation appeared to be urgently demanded; but the results were not encouraging, and although he is far from believing that the condition of these patients was made worse by paracentesis, yet he thinks that unless absolutely demanded by urgency, it is better to abstain from the use of the trochar. In the majority of cases the fluid effusion spontaneously subsides within a reasonable period, and nothing is gained by the attempt to hurry the process.

In the *second* class of cases the abdominal distension has either been preceded or is accompanied by other disorders, the significance and the gravity of which may vary almost indefinitely. In some cases there is pretty severe pain, with tenderness on pressure, such in fact as to suggest a sub-acute, if not an acute attack of peritonitis. In others there is diarrhœa more or less long continued. In some, but by no means in a large proportion, there is vomiting; in the majority of cases, however, vomiting is either not present or is altogether occasional and accidental. The physical alterations in this group of cases, to percussion and palpation, may differ but little from the former; the prognosis, however, is distinctly less favorable. And in not a few of these less favorable instances, the temperatures are persistently elevated; diarrhœa is more or less constant, and accompanied by pain; the tongue becomes coated, or perhaps still oftener red, with markedly injected papillæ; and the emaciation is considerable from the first. The essential difference between the two groups as here briefly indicated is, that in the former there may be no disease of the mucous membrane, while in the latter ulceration more or less considerable, of the glands of Peyer, or of the solitary glands of the ileum and colon, has preceded or accompanied the abdominal swelling. The presence or absence of mesenteric tubercles makes very little difference as regards the symptoms. In the majority of the latter group, and in almost all the fatal cases, they are present; but so inextricably involved in the other lesions, whether of the mucous or serous membrane, or both, as to lead to the probable inference that they are of quite secondary importance. At all events, there is no reasonable ground for adopting the rule of the French authorities, of confining the use of the name *carreau* to the cases of

mesenteric glandular tubercle. It is not improbable, however, that a distinction insisted on by M. Guersent, and on the other hand disallowed by Rilliet and Barthez, may be considered as corresponding generally, though by no means in every detail, with the symptomatic differences of these two groups. "Mesenteric tubercles," writes M. Guersent, "present themselves under two very distinct aspects, which must necessarily have a very different influence on the abdominal organs, and consequently on the vital phenomena thence arising. The tubercles may be without any kind of inflammation of the surrounding parts, or they may be accompanied by a true phlegmasia of the glands, and sometimes even of the intestinal mucous membrane in the neighborhood of the diseased glands. In the first case, they (*i. e.* the tubercles) are indolent; in the second, they are ordinarily painful." And he proceeds to show accordingly that between the *carreau indolent* and the *carreau inflammatoire* there is all the difference between a disease with hardly any distinctive symptoms and one having the ordinary, and to a certain extent well known symptomatic characters of the *tabes mesenterica.*

The error here is, that M. Guersent, while admitting in detail that mesenteric tubercles have no distinctive symptoms at all, still adheres, most illogically, to the old tradition which identifies them exclusively with the *carreau*, and considers all other lesions as purely accidental. MM. Rilliet and Barthez, following in the same track of tradition, but describing, with the greatest care, the anatomical condition of the diseased mesenteric glands, maintains (no doubt quite correctly from this point of view), that it "seems impossible to find, in the pathological anatomy, a point of departure for the division of the *carreau* into two species—painful and indolent. Pathological anatomy," they remark farther, "does not justify this manner of looking at the subject, and symptomatology is still more opposed to it."[1] But by separating entirely, in two distinct chapters (xv. and xvii), the tuberculization of the peritoneum (*phthisie péritonéale*) and the tuberculization of the mesenteric glands (*carreau*), MM. Rilliet and Barthez have, in effect, thrown away the opportunity of presenting a complete nosological picture of disorders which are so constantly seen in combination that it is practically impossible to dissever them. The real basis of the distinction of the *carreau* into two varieties is to be found, if at all, in the difference above mentioned.

The clinical distinction between the two classes or groups of cases above described (which, however, must be considered as passing into each other by all sorts of intermediate gradation), is sufficiently manifest. In the former, the prognosis is relatively good; but on the other hand, it is to this group that the remarks chiefly apply which Dr. Gairdner has already made as regards the difficulty of defining their strict pathological position, and especially in determining how far they belong, or not, to the tubercular class. All that can be affirmed with certainty in the meantime is that such cases occasionally, and by no means infrequently, get apparently well. And, moreover, their antecedents, hereditary and other, are often such as to justify the hope that at least in some of them the cure may be permanent. On the other hand, much of what the author has to say as regards the preventive, hygienic, dietetic management of such cases, applies less to this group than to the other and more formidable one; because a disease emerging, as it were, directly out of a state of apparently good

[1] Vol. iii. (2d edition), page 810.

health, scarcely admits of the application of such anticipatory treatment. Such cases may perhaps belong to the variety described by Bauer as *chronic diffused peritonitis*, in its variety of *latent general peritonitis* resembling ascites; but, if so, present information as yet gives no insight into its cause, such as would suggest any practical distinction of it from the corresponding class of tubercular cases. "The symptoms which are present in the beginning of the disease (according to Bauer), are, as a rule, very trivial, anything the patient complains of being general and undefined. Dull pains occur in the abdomen, which are increased on pressure and on bending of the body. The patient's general health is out of order; he feels tired, and his appetite is bad. Going up stairs, especially, is frequently the source of an unpleasant sensation in the abdomen. Months may intervene between these primary, scarcely heeded symptoms, and the complete development of the disease; in other cases this stage, which Galvagni describes as prodromal, is shorter." . . . Even in the stage of effusion, "the phenomena are in no way very urgent, and are such as might, for the most part, be quite as fully produced in simple mechanical ascites. . . . There is something remarkable in the insignificance of the pain in many, and the complete absence of it in some few cases of chronic peritonitis. The temperature is often found to be quite normal; in other cases there occur evening exacerbations of a moderate degree. The pulse, on the other hand, is almost always quickened."[1] It is needless to point out the close resemblance between Bauer's description of what he regards as a very rare disease, and that which is now under discussion. Upon the whole, without excluding from view in further remarks the first group of cases, it is the second that must be kept chiefly in view in all that concerns treatment, and especially prophylaxis; it being understood, however, that the principles of management applicable to the second group are also to be kept in view in the first as far as may be.

If an infant, or a young child at any age, appears to be out of health, or emaciating, or disturbed in any way as regards the abdomen, it will always be proper to suspect, at least, the beginnings of this disorder. MM. Rilliet and Barthez, like almost all the other writers on the diseases of children, insist on the differential diagnosis between simple enlargement of the abdomen and that of tubercular peritonitis. And Guersent has also described the enlarged abdomen of debilitated or rickety infants as being quite distinct from that of mesenteric disease, or *carreau*. The distinction may be admitted as a pathological fact, and yet some of the grounds of the diagnosis cannot be accepted without demur. "The consideration of the age alone," say MM. Rilliet and Barthez, "would suffice to prevent mistake: peritoneal phthisis being extremely rare among young infants, while, on the contrary, rickety distension is frequent at this period of life" (page 791). A similar remark is made by Guersent as regards mesenteric disease. But these statements are scarcely borne out by the facts; for in the article on causes (p. 794), MM. Rilliet and Barthez adduce no fewer than 11 fatal cases of tubercular peritonitis as occurring between 1 and 2½ years, as against 26 between 3 and 5½ years; 40 between 6 and 10½ years; and 9 between 11 and 15 years; thus showing that the conditions which dominate tubercular peritoni-

[1] Ziemssen's *Cyclopædia* (American Translation), vol. viii., p. 299.

tis, if not the actual fully developed disease, must, from the practical point of view, be reckoned with as in operation from the very earliest ages. For it is hardly necessary to point out that the 11 infants who died within the first three years of life, and the $11 + 26 = 37$ in whom the disease reached its fatal term within the first six years, were in all probability subject to the causes of it from a very early age; if not from birth, at least from the commencement of dentition, and therefore quite within the period when no practical distinction can be established on this ground between the rickety and tubercular forms of enlargement. Moreover, in seeking to lay down prophylactic rules it would be impossible, or at least would be highly inexpedient, to limit these to the developed disease. Statistics founded on fatal cases are therefore only applicable when we give due consideration to the fact that these fatal issues are the sequel and last extremity of a more or less protracted course of impaired health, the first stages of which it is very desirable, if possible, to intercept. The same remarks apply to the statistics by Rilliet and Barthez of mesenteric tubercles (*loc. cit.*, p. 820). These were found in 27 cases at from 1 to 2½ years, as against 41 cases from 3 to 5½ years; 55 cases from 6 to 10½ years; and 21 cases from 11 to 15 years. Here, again, therefore, although the greatest predominance of fatal results is between 6 and 10½ years, the numbers given at earlier ages necessarily carry one back to the very earliest infancy, if he is to entertain at all the idea of prophylaxis. And it is further to be remarked that, at all the ages given, but much more at the earlier ages, the numerical preponderance of the male sex is very notable, amounting to about double in the very earliest ages, and from this to about a third greater in numbers as childhood advances. Dr. Gairdner has not found any corresponding statistics of the rickety distension of the abdomen, for the obvious reason that this is rarely fatal; but it is generally admitted that rickets, while occasionally congenital, and not unfrequently developed during the first six or twelve months of life, attains its greatest frequency, and possibly its highest active development, during the second year, or, speaking broadly, during the progress of the first dentition, while the authorities differ widely as to its relative frequency in the two cases.[1] It is, therefore, obviously impossible to succeed on mere considerations of age and sex in establishing such a differential diagnosis as shall be of practical utility in the early stages of either disease. This point the author regards as one of great importance; because it has been usual to assume (in his opinion witnout any sufficient foundation) that all enlargements of the abdomen, and most of the catarrhal affections of the mucous membrane occurring before or during the first dentition, are to be taken as non-tubercular;. and even that there is a kind of antagonism, or mutually exclusive element of difference, as between the rickety and tubercular constitution. Thus, M. Guersent declares that rickety infants are very rarely the subjects of mesenteric disease or *carreau*. The statistics of MM. Rilliet and Barthez are entirely opposed to this assertion. Dr. Gairdner, on the contrary, is strongly persuaded that *rickety infants who die* would, like other infants, be found in a large proportion tuberculous. It is sufficiently obvious that those who recover, or who present at more advanced ages the permanent rickety defor-

[1] Ziemssen's *Cyclopædia* (Senator), vol. xvi., pp. 172, 173.

mities, are precisely those who may be said to have escaped death *because* they were non-tuberculous, or, at all events, not tuberculous in a high degree.

Whenever, accordingly, in a very young child there is a manifest disturbance of health affecting the general nutrition, especially if this is associated with diarrhœal disease, or with colicky pains in the abdomen, and habitual feverishness, if not explained by any accidental cause, or by any endemic or epidemic condition generally prevailing, it is, at least, safe as well as expedient to adopt measures founded on the presumption that such manifestations may be the harbingers of organic changes which may issue in *tabes mesenterica*, or in some of its congeners. In the well known essay of Dr. Cheyne on the Atrophia Ablactatorum, or "Weaning Brash,"* there is not, indeed, a well ordered account of the pathological anatomy, nor is there any clear recognition of tubercular disease concurring with the lesions described; which, indeed, the author's theory leads him to associate more with hepatic derangement than with the changes in the mucous membrane of the intestines. But in one at least of his dissections, Dr. Cheyne has especially figured "the glands in the root of the mesentery much enlarged" (page 49). This child was under 13 months old; was weaned at 11 months, and about a fortnight after diarrhœa came on. The fatal issue was due to convulsions; the purging having ceased, owing to the administration of remedies. And the author remarks that "the original disease had by no means arrived at so great a height as I have seen it. The emaciation was not so great as usual, nor the purging nor derangement in the alimentary canal so determined" (p. 47). It is quite obvious that the disease in this case was rather acute, and in all probability was not definitely tubercular. This may, indeed, be the usual fact in cases of this kind; and yet it is surely reasonable, in view of the facts stated above, to argue that when, from hereditary causes or otherwise, young children are predisposed to tuberculous forms of disease, the first foundations of such diseases may often have been laid at the time and in the manner here set forth.† In like manner it is difficult to believe that the various forms of diarrhœal disease in young infants, especially those that are characterized as *inflammatory diarrhœa* or *entero-colitis*, are not more or less closely associated as causes, if not as co-incidences, with the derangements of health that, at somewhat more advanced periods of childhood, bring about deaths that are frankly tubercular. It is not necessary, in order to maintain this position, that we should assume the existence of tubercle as a demonstrable fact in many of the fatal instances of these early acute forms of diarrhœal disease. No doubt, innumerable cases of simple diarrhœa, of

* *Essays on the Diseases of Children, with Cases and Dissections.* Essay II. By John Cheyne, M. D., Edinburgh, 1802.

† "The mesenteric glands are enlarged," writes Dr. Cheyne, in giving the results of his general experience in fatal cases of the "weaning brash;" "nay, in some instances, inflamed. May not this proceed from the acrid nature of the alimentary matter to which their absorbing mouths are exposed? May not the *tabes mesenterica* often arise in this way?" The remarks which follow, at p. 28 (note), show conclusively that, without having definitely adopted a tubercular pathology of these disorders, and having, moreover, peculiar and individual views as to the relation of the biliary secretion to the *atrophia ablactatorum*, Dr. Cheyne was, nevertheless, fully impressed with the probable pathological continuity of the more acute disorders of early infancy described in this essay, with the more chronic and scrofulous ones of childhood generally.

epidemic diarrhœa, or of cholera infantum, and of entero-colitis, attended by destructive lesions, chiefly of the large intestine, may occur altogether apart from tubercle; and yet, as we have seen, abdominal tubercle is very far from being unknown in early infancy. Scarcely any one doubts the influence of certain acute fevers in arousing the latent proclivities to tubercular and scrofulous disease of the chest—*e. g.*, measles, hooping cough and epidemic influenza. Why, then, should it be doubtful that the acute and sub-acute disorders of the intestinal canal which occur during, or even previous to, the first dentition, may reasonably be supposed to have a like influence as regards abdominal tuberculosis? In the valuable chapter on entero-colitis in Meigs & Pepper's *Practical Treatise on the Diseases of Children*, many interesting details will be found as to the lesions in question, and their association with climatic and epidemic conditions.

It follows, then, that in all cases in which, from hereditary antecedents, or from delicacy of constitution acquired soon after birth, a child may be reasonably suspected of a tubercular predisposition, the utmost care should be taken that, if possible, during the specially perilous season of weaning, and during the whole progress of the first dentition, nothing should be done to bring into activity the latent defects of constitutional habit which might afterwards assume the form of some of the diseases with which this paper deals. The food of the infant, its clothing, its surroundings as regards pure air, etc., ought to be the subject of the most anxious consideration. Dr. Meigs points out, by means of a very striking table obtained in Philadelphia, and presenting, in an intensified form, data which are equally well known in connection with the diarrhœal death-rates of this country, that, in July and August, and in a less degree throughout the summer and autumn months, diarrhœal diseases assume a prominence amounting in some cases to not much short of a hundred times as many deaths as they cause in some of the colder months: indeed, that a mean temperature above 70° is absolutely certain to bring these diseases in its train, and to a greater degree in proportion as the temperature is higher. Drs. Meigs and Pepper, therefore, recommend that, under these circumstances, children who are suffering from diarrhœal disease should be removed as far as possible from town into healthy and cool stations during the whole of the hot months. And this recommendation is powerfully aided by the parallel they are able to draw between the diarrhœal diseases of infants and those observed among adult soldiers during the American war, when it was found absolutely necessary, and in fact the only effective method of treatment, to remove the soldiers affected with disease from their unwholesome surroundings in the South, and to send them to hospitals specially provided in healthy localities in the Northern States. It has also been regarded as highly expedient, in most cases, to avoid weaning a delicate child at the dangerous season of the year;* or, if weaning is absolutely necessary under such circumstances,

* This very important recommendation extends back to the time of Dr. Cheyne, and is strongly corroborated in the excellent and thoroughly practical American work of Dewees, when remarking on Cheyne's statement, that "delicate children should in the autumn seasons be kept a month or two longer at the breast than might be thought necessary at any other, rather than be exposed to the aches and hazards which never fail to accompany this distemper" (the "weaning brash"). On this passage Dr. Dewees observes:—"This advice is in strict conformity to the usage of this country: it is so well understood by everybody here

to take extra pains to secure proper food which has not undergone decomposition, or otherwise been contaminated by noxious effluvia. The elaborate and well considered chapter upon the food of infancy in the excellent work already referred to* may be recomended to all, as also the quite recently published little work of Dr. Arthur V. Meigs on *Milk Analysis and Infant Feeding*, which may be said to contain the latest data, at once scientific and practical, upon the chief food of infancy. At page 410 of Meigs and Pepper's work will be also found certain interesting statements regarding the putrescibility of milk under various atmospheric conditions, and the probability of bacterial infection as a cause of diarrhœal disease, which, although very important, cannot be enlarged upon here. Two "broad generalizations," however, at page 418, may be here cited:—

1. "An unhealthy food—one incompetent to furnish to the body what it needs for the purpose of nutrition, as farinaceous food, or unhealthy milk, is sure to produce the disorder we are considering, no matter how favorable may be the circumstances, in all other respects, in which the child is placed.

2. "The best breast milk in the world, or the most correct artificial diet, will not save a child from this disorder who is located is an ill-ventilated house in a dirty and filthy quarter of a large city during hot weather."

It would be difficult to place the whole subject of the hygiene of early infancy in a clearer light, or in a more comprehensive form of statement than this.

But we have seen above that, in not a few instances of disease resembling *tabes mesenterica*, it arises without much notable diarrhœa in the first instance, and certainly not as the sequence of obviously epidemic or endemic conditions. In such cases, as in all cases, it is of course necessary to treat the disease actually existing, either without reference to its antecedents, or with only such reference to these as is possible under the circumstances. Certain points may here be stated which are of quite general application. Warm underclothing and dress loosely fitting to the body should be usually adopted, unless the temperature is very high, when even the lightest and thinnest flannel is borne with difficulty, a thing which can rarely happen in this country. But when thus protected, the child should not be too closely confined to bed, or even to the house in good summer weather, as a rule, unless, indeed, the intensity of the fever or extreme bodily weakness, or the frequency of the discharges, make this imperative. Bathing in water moderately warm, and in the great majority of cases, inunction of the abdomen with cocoa-nut oil (preferable as a rule to cod liver oil, which, however, is also often recommended for inunction), will be found very advantageous. The temperature of the bath may vary, according to the state of weakness or chilliness of the child, from 60° or 70° up to 90° or 95°. It is rare, comparatively speaking, for the mere intensity or continuity of the pyrexia to require the absolutely cold bath as an antithermic agent; but no doubt the same principles as

that a physician is rarely consulted upon its propriety. During the months of June, July, August, and frequently September, weaning is never performed as a matter of choice, let the age of the child be never so proper, unless it has completed the cutting of its first set of teeth. The dread of our females in this country is the "second summer."—Dewees *On the Physical and Medical Treatment of Children* (1826), p, 331.

* Meigs and Pepper, seventh edition, 1883, page 301.

would hold in typhoid fever may be considered as applying to the disorder now in question, under the like circumstances. Professor M'Call Anderson, has published several cases in which the application of ice-cloths to the abdomen as a substitute for the cold bath has, apparently, proved useful under very unpromising circumstances, both in tubercular peritonitis and in acute phthisis. The method of application is as follows: "The night dress is pulled well up over the chest, so as to avoid any possibility of its being wet, and, for a similar reason, a folded blanket is placed across the bed under the patient's body. The usual bed-clothes are arranged so that they reach up to the lower part of the chest only, which latter is covered with a separate blanket in order to prevent unnecessary exposure while the iced cloths are being changed. Two pieces of flannel are employed in the process, each being sufficiently large, when folded into four layers, to cover the whole of the front and sides of the abdomen. One of these, wrung out of iced water, is applied, while the other is left in a large basin filled with iced water at the side of the bed. The pieces of flannel are changed every minute, or so often that they still feel cold when they are removed. The changing of the flannel, especially if two persons are in attendance, one to remove the bed-clothes and the flannel, the other to apply the piece which is freshly iced, can be effected with great ease and rapidity, and without exposing the patient to any injurious extent, if the preliminary arrangement of the bed-clothes is made in the way I have indicated. I have thought it right to mention these apparently trivial details, because I have often seen the process carried out in such a way as to be perfectly futile, and because I have been frequently interrogated on the subject. But I think it right to add that, in the treatment of acute phthsis, I do not wish to lay too much stress upon the value of iced cloths by themselves, but to attribute the success of the treatment to the combination of measures employed. Of course the same precautions must be taken in the use of iced cloths as in the employment of the cold bath, and the cloths must be at once removed if there is any tendency to coldness or collapse."* This method is certainly convenient; but it may reasonably be doubted whether too much is not claimed for it. According to all Dr. Gairdner's experience hitherto, the use of cold externally applied as an antithermic relieves or palliates, it is true, the individual symptoms for the time being, but fails entirely in arresting, or even in most cases in subduing the essential morbid process. He does not wish to argue the case of hyperpyrexia here, or even of typhoid fever or pneumonia with temperatures continually maintained for days at such a level as must necessarily prove extremely debilitating. In the affections now under consideration this state of the temperatures is rarely present; and, while not discountenancing the use of external cold, or even ice, in such cases as may appear to require it, he is of opinion that the majority of cases do equally well or better without this. He has also frequently used quinine, and of late years antipyrine, in these cases. The latter remedy has, on the whole, answered well so far as bringing down the temperature is concerned; but its action is very fleeting, and it is extremely doubtful whether more is not lost than gained by the repeated introduction into the stomach of substances which are non-nutritious, and which,

* *Clinical Lectures, etc. Op. cit.*, pp. 35, 36.

on the whole, tend to disturb digestion. It should never be forgotten that the paramount object of treatment is to preserve as far as possible the remains of the digestive and assimilative powers; and large doses of quinine or antipyrine, or any other substance of this nature, are scarcely consistent with following out a regimen of this kind.

In dieting patients beyond the age of the first dentition, it has been a not uncommon practice on the Continent to employ raw meat. This, as a food for infants deprived of their mother's milk, or for weaned children, was recommended as long ago as 1840 by Weisse, of St. Petersburg, and has been highly praised by Trousseau and other eminent authorities on the Continent. The meat is to be cut very fine, pounded in a mortar, and strained through a sieve or colander. The pulp, thus separated from the cellular tissue of the the texture of the meat, may be rolled into small balls in salt or powdered sugar. This, given in very small quantities at first, and gradually increased, is said to arrest diarrhoeal diseases, and to bring about restoration of health. Generally speaking it may be said that Continental physicians are far more inclined than those in this country to advocate a diet of meat even for very young children; and this, in circumstances under which few British physicians would consider it suitable.* No doubt raw meat is under such circumstances found more digestible, and therefore less injurious, than some other forms of it; but in one very striking case, under the care of Dr. Goodchild, of Bordighera, the author had occasion to follow, with the interest of an intimate friend as well as a medical man, all the details of treatment under a variety of medical authorities in Paris and elsewhere for years. The case is one in which a young, extremely delicate boy, now about eleven years of age, had been for a long time subject to diarrhœal and digestive disturbances from the very slightest errors of diet, and not unfrequently with threatenings either of

*The controversy, however, is by no means one of yesterday, or even one between British and Continental physicians, as Dr. Gairdner finds from the following note in Dewees' celebrated *Treatise on the Physical and Medical Management of Children*, 1826. The author, as representing American opinion in his day, is criticising (with much appreciation, however) the essay of Dr. Cheyne cited above:—"We were not a little surprised," he writes, "to find the following observation of Dr. Cheyne, on the subject of proper diet for children—namely, that 'an animal diet produces less irritation than one which is solely composed of vegetable matter' (p. 36). It is certainly contrary to our experience, and we had like to have said to that of everybody else. We have even found reduced milk, rennet whey, gum arabic water, thin sago, tapioca, or arrowroot, vastly more proper in all the complaints of the bowels, where nourishment may be safely permitted, than any animal juice, however much diluted. But we are persuaded that during the acute form of the disease, where purging is necessary, where there is a pain and a fever, the less the child takes into its stomach the better . . . The only thing proper at such times is a little of the mother's milk, if the child be not weaned, or if the milk is known to agree with it, or the occasional use of thin gum arabic water." But Dr. Dewees seems to have forgotten for a moment that a diet of milk and rennet whey, etc., is *not* "solely composed of vegetable matter," such as is denounced by Cheyne. Dr. Dewees' own opinion is very much in accordance with that of his legitimate successors in Philadelphia in the present day. "During the continuance of this disease, we strictly forbid animal food or juices under any form. If the child be at the breast, let it be confined to it, if the mother has a sufficient supply; if she has not, let it be in part supported by reduced milk and a little sugar."

chronic peritonitis, or at all events of some disorder involving considerable swelling of the abdomen, with foul breath, enlarged papillæ of the tongue, and at times very decided feverishness. The general impression left on his mind is, that the meat diet allowed, or enjoined, under these circumstances, by foreign physicians, especially in Paris (where his parents reside) has had again and again to be abandoned in favor of a diet either absolutely, or almost absolutely, composed of milk, when the symptoms were most threatening; and that it has been only with the greatest reserve that a return even to the lightest farinaceous articles along with milk could ever be allowed, and to meat not at all. Such, at all events, was the result in Dr. Goodchild's mind from the most careful and detailed watching of this interesting case.* Still in some cases, very moderate quantities of meat, of meat juice, or still better of meat-peptones, such as Carnrick's, or the peptonized jelly prepared by Benger, or the meat juice of Valentine, may be found useful, but only in older children.

It is very doubtful how far counter-irritation, in any extended sense of the word, should be employed, even in cases where there are physical alterations attended with considerable pain, and symptoms of local inflammation. The addition of iodine, or of iodine ointment, to the ointment of cocoa-nut oil above mentioned, a constant resource; and, as it can be employed in every proportion, answers every purpose without the necessity of breaking the skin. Hot linseed meal poultices give relief when there is much pain, but if extended over the whole abdomen are unpleasantly heavy, and tend to produce sweating in excess. Dr. Eustace Smith recommends, accordingly, smearing the surface with a salve composed of extract of belladonna and glycerine in equal proportions, and covering this with a thick layer of cotton wool. A very old external application, recommended in the last century by Russel, in what he called "glandular tabes," is sea water; and perhaps it might be reintroduced with advantage in the form of Tidman's sea salt, used as a very strong brine, warmed and applied locally by means of flannels or spongiopiline; but the author says he has no experience of this. Some eminent authorities recommend the application of mercurial ointment or ointments of the oleate of mercury; but this too, has not entered into Dr. Gairdner's practice. Opium, where either pain or intestinal irritation is present to any great degree is, according to his experience, an indispensable remedy, and may be administered with considerable freedom, due regard being had to the age of the child. Bismuth, even in large doses—*i. e.*, up to 20 or 30 grains—is sometimes very useful when there is obstinate diarrhœa. But, of course, these and all other like remedies should be limited to the critical conditions, which precisely demand them. Under opposite conditions, when pain is not great and when the bowels are quiescent, cod-liver oil is a valuable medicine, and when digestion is feeble, it may be aided by the pancreatic emulsion of Savory & Moore, or the *liquor pancreaticus* of Benger, which may also be given independently with good effect. Cream may be given in place of cod-liver oil, or the malted cream lately introduced by Lœflund, which, however, is often found too luscious,

* Dr. Gairdner says: "The last intelligence I had of this child is that he is now, after years of most anxious watching, and several winters and springs spent on the Riviera, so far recovered as to be able to vary his diet without injury, and practically well and in good bodily condition."

as are, indeed, the most of the malt extracts manufactured in Great Britain. In some cases a very little stimulant, brandy or whisky being the best, from a few drops to a teaspoonful at a time, appears to aid the digestion, restrain diarrhœa, and conduce greatly to the comfort of the patient; but it ought by no means to be converted into a routine treatment.

By these or similar means Dr. Gairdner has been led to think that the dark prognosis of what has been termed *tabes mesenterica*, and the still gloomier picture given in systematic works of tubercular and chronic peritonitis, may in some, even not a few, cases be relieved of its darkest shades. What has chiefly interfered with this conviction becoming more general than it is now found among highly educated and experienced physicians, is the unconscious bias to which the author has already alluded, derived from pathological anatomy. Having suffered from this bias himself in the earlier stages of his career, and only emerged from it very gradually through the clinical experiences of more than a quarter of a century, it has seemed to him a not superfluous task, even now, to lay before others the sources of the error as they appear to his own mind, and to call upon a younger generation for still further researches with respect to it.—*Glasgow Med. Journal, July, 1887.*

IV. OBSTETRICS, DISEASES OF WOMEN AND CHILDREN.

Plaques of the Vulva.

Dr. BESNIER presented a patient at one of his recent clinics (*Journal de Médecine*, June, 1887) who had whitish plaques upon several different points of the mucous membrane of the vulva, which cannot be better described than by saying that they were absolutely analogous to those termed psoriasis of the tongue and cheeks, leucoplakia, etc. The analogy is further carried out by the fact that these vulvar plaques can also become transformed into epithelioma.

This condition is occasionally encountered after uterine affections, and is also often seen in diabetics, in which case the prognosis is more favorable, for if the sugar can be made to disappear from the urine the plaques likewise disappear. If the glycosuria persist, the affection must be treated locally by alkaline injections carefully made after each act of micturition, and by the application of pomades to protect the sound parts from the contact of the irritating liquids. Such a pomade is the following:

℞. Pulv. zinci oxidi,
Pulv. amyli,. . . . . āā 6 drachms.
Vaseline. . . . . 10 "

—*Journal of Cutaneous and Genito-Urinary Diseases, October, 1887.*

Painful Fibroma of the Ovary; Ovariotomy; Cure.

M. RENDU published this case in the *Lyon Médical*, November, 1886, because of the extreme rarity of fibroids of the ovary.

S. C., 32 years old, was admitted to the hospital on October 14, 1885. Menstruation was regular and normal up to the age of 22, when it commenced to occur every fifteen or twenty days, and to last each time for eight or ten days. The discharge was profuse and mingled with clots. In March, 1884, menstruation became more regular, but in the intervals there was a persistent leucorrœhal discharge. Her sufferings commenced at the end of March, 1885. The pain, which was mostly confined to the left hypochondrium, was so severe as to confine her to bed for all except a few hours in the day. Walking was painful, and the body was bent forward so as to relax the abdominal muscles. Sitting, more especially when any pressure was made on the sacrum, or coccyx, was extremely painful. When lying on her back, her hands had to be placed under the loins, so as to free the sacral region from pressure. The only position in which she could rest easily was when lying flat on the abdomen. The general health was good, and, although she had had a cough, with expectoration, for a long time,

there were no physical signs of phthisis. Constipation was present, and defecation painful.

Examination, when the patient was under the influence of chloroform, revealed an intact hymen, which was not torn by either the finger or Fergusson's speculum. The cervix was pushed to the right by a small, hard tumor, which could be felt to the left and behind the uterus. The uterus, which was of normal size, could be moved freely, independent of the tumor. The tumor was hard, smooth, movable, and excessively tender to the touch, for when pressed, the patient, not being fully anæsthetized, started and cried out. As the pains became worse, the patient insisted upon an operation being undertaken. Abdominal section was, therefore, performed towards the end of October. After the operation, which presented no extraordinary features, the patient made an uninterrupted recovery, and has since been free from pain.

The tumor, which during the operation was found to be the left ovary, was of the shape and size of an ordinary pear. It was white, firm, dense, contained no cavity, and presented exactly all the macroscopic characters of a fibroid tumor of the uterus. Unfortunately, when being prepared for the microscope, the specimen was spoiled, so that it was impossible to obtain sections from it.—*Med. Chronicle, October, 1887.*

Precocious Menstruation and Early Pregnancy.

Dr. Orin C. Boyden, of Bridgeport, Vt., writes as follows in the *Massachusetts Med. Journal*, October, 1887: During the past few years a number of cases of early puberty have been recorded, and have been read with interest. Dr. Boyden says his attention has been recently directed toward the subject, in consequence of having been consulted by a lady in regard to her daughter, who commenced to menstruate at the age of nine years and five months, the flow continuing five days. This girl had a youthful face, and a mind in correspondence with her years, but was in all other respects far advanced towards womanhood, being five feet one inch high, having well-developed mammæ, rounded limbs, a moderately full pelvis, hair upon her pubis, and weighing ninety pounds. She had been reared in a quiet country place, educated at home, and kept free from all excitement. A sister of twelve, who is two and a half inches taller, and four pounds heavier, has as yet no sign of approaching puberty.

In contrast with this case he presents two others, each representing different types of precocious menstruation, in which the epoch anticipates the other characteristic marks of puberty. The *first* is that of a large over-grown plethoric girl, such as are very apt to menstruate at an early age, particularly in cities, whose menses appeared for the first time two months ago, at the age of eleven years and nine months, at which time she measured five feet one inch and a half in height, and weighed one hundred and six pounds. The attack was of a menorrhagic character, and due no doubt to the effect of the long hot summer, acting upon a plethoric habit. With all this size and weight, there was nothing womanly in the girl's configuration; her mammæ were undeveloped, her pelvis but slightly enlarged, and the measure of her chest and waist nearly the same. The parents of both these mentioned cases are of only medium height.

Case II. is that of a little girl who came under his notice just two years and a half ago, at the age of twelve years and six months, at which time her menses made their first appearance. She was then four feet eight inches high, of very narrow frame, and weighed seventy-two pounds. Her parents are both below medium height, the height of the mother being five feet. At fifteen, which she has just reached, she measures the same in height as her mother, weighs ninety-five pounds, and is only now presenting in her figure the marks of womanhood. She is mentally quite precocious, has been educated at home, enjoys excellent health, and is strong and active, from much attention having been paid to her physical training. A sister of nearly thirteen, and better developed than the former at twelve and a half, has not yet menstruated. After the first menstrual flow ceased, another made its appearance a few days later, during an attack of measles, but soon stopped, and there was no return for six months, since which time she has been regular. At the close of the summer, as in the last case, the attack for the first and only time was menorrhagic in character.

Precocious menstruation may be divided into two varieties: 1st. That which occurs during infancy, or the first seven years of life. 2d. That which appears at a later period of childhood, but is still anterior to the ordinary age of puberty; *i. e.*, from seven years of age to thirteen, the latter being an early period, but not markedly precocious, because in this climate even, from one-eighth to one-sixth of the girls menstruate before they reach fourteen.

Infantile menstruation is by no means so rare as any one might be led to suppose who had not examined the records found in large medical libraries. *True* menstruation, confirmed in character by all the necessary evidences of approaching puberty, has been so often met with and reported upon, that a large number of authenticated bases might readily be collected from the journals of Europe and the United States.

In the infantile cases, the attention of the mother or nurse is generally attracted by the womanly development of the child before there is any appearance of the menses. Children have been born with the marks of puberty upon them, or have rapidly acquired them at a very early age. Some, it is true, have menstruated without having these evidences, but such are an exception to the general rule, are generally irregular, have the symptoms of cachexia, and fall victims to some wasting disease. But in the great majority of cases of infantile menstruation, precocious puberty is undoubtedly present, and the whole system is in correspondence with it, so that the function does not, in its performance, interfere with the growth or health of the subject. From an examination of numerous reported cases of infantile puberty, Dr. Boyden has drawn the following conclusions:

1. With very rare exceptions, no matter how young the infant may be in whom the menses have made their first appearance, the mammæ are found unusually developed, and the pubis shaded with hair.

2. The subjects have, in almost all instances, menstruated regularly, grown rapidly and vigorously, been somewhat inclined to obesity, and have not presented any signs of weakness resulting from the menstrual loss.

3. This form of precocity appears to be little, if at all, dependent upon any climatic influence; the latter variety is undoubtedly accelerated by heat.

4. The maturity of the uterine system is generally independent of any marked precocity of development in the mental faculties.

5. Sexual passion, so general with precociously developed male infants, is seldom a marked characteristic in females of corresponding years.

6. The first appearance of the menses is more common during the first, second, and third years of infantile life, than it is in the fourth, fifth, and sixth.

7. Infantile puberty is more common in the female than in the male sex, although in the latter there are cases which are quite as remarkable as any in the former.

What the age of nubility may be in these subjects, can only be conjectured, as but few observers have followed up their cases, and reported the ages at which they subsequently became mothers. In the case related by Dr. Rowlett, of Kentucky, some years ago, the child menstruated at one year, was regular thereafter, and gave birth to an infant weighing seven and three-quarters pounds, at the age of ten years and thirteen days, at which time the mother measured four feet seven inches in height, and weighed one hundred pounds.

In Schmith's case, reported in 1779, the menses appeared at two years, and the child gave birth to a dead fœtus when eight years and ten months old, which was thought by its development to have reached to full term. The appearance of the mammæ and pubis of the mother were said to resemble those of a girl of seventeen. Sir Astley Cooper gives a very remarkable instance. The girl commenced to menstruate when three years old, and was last noticed by him in his report when seven years and five months old, at which early age she had all the appearances of a thick-set stunted woman, so much so that she was a noticed object when in the street. She measured four feet one inch high, and had so large a pelvis that she could no doubt have given birth to a fœtus. Le Beau's case also menstruated for the first time when three, and was so large and well developed by the age of eight that he regarded her as capable of bearing a child at that period.

Among cases of early pregnancy in subjects not menstruating during the period of infancy, may be mentioned one reported in the *Boston Medical and Surgical Journal* a number of years ago. The young mother was born of native parents in some one of the charitable institutions of this State, the record of which proved her to have been ten years, eight months and seven days old at the time she was herself delivered of a male infant weighing eight pounds. It was subsequently found that she had menstruated once or twice prior to impregnation, and that the father was a boy of sixteen. Notwithstanding the youth of the mother, her child grew vigorously, so that at the age of three years and two months he measured three feet five inches, and weighed forty-six pounds.

Dr. Boyden says he has not met with any *well authenticated* record of birth having taken place in England prior to the age of twelve years. Thorpe delivered a girl a few months over twelve (exact age not given) of a full grown but still-born fœtus. "Her figure was that of a well grown young woman, with fully developed mammæ."

A girl aged twelve years, seven months and three days, gave birth to a full grown child at Coventry, England, September 16th, 1848; she commenced to menstruate at ten years and six months. The father was a man of forty-seven.

It is impossible to determine with any degree of accuracy from the tables which have been published, what is the proportion of females menstruating in temperate regions at the age of nine, ten and eleven years, for the reason that to do this would require much more extensive and carefully collected records, because of the small percentage which is thus affected. In the cities of Paris and London, taking all classes into the enumeration, it is presumed that one girl menstruates at the age of nine, to from one hundred to two hundred who are thus affected at a later period of life. In India, where the maximum is reached at twelve, the proportion of these earlier years is much greater, and may be more satisfactorily determined. Among the Hindoos, from one to two per cent. menstruate as early as nine; three to four per cent. at ten; eight per cent. at eleven; and twenty-five per cent. at twelve. This is more especially the case with the inhabitants of Calcutta, in whom the catamenia make their appearance somewhat earlier than in some other parts of India, where the climate is cooler, or the people belong to another race; for the term "Hindoo" embraces many very distinct nationalities, and it is a question whether ethnological influence is not more potent than difference of temperature, except where the latter is extreme, in determining the age of puberty. However this may be, it is a well established fact that the Hindoos, taken collectively, from the hot portions of India, without respect to caste or race, menstruate much earlier than the women of temperate climates. By this mode of computation it will be seen that the greatest number in India reach puberty at twelve years of age; that sixty-five per cent. of them menstruate before reaching fourteen, against but twenty-five per cent. of the women of France and England; and that before one-half of those in these two named countries have reached puberty, four-fifths of the Hindoos have attained it.

To make comparisons of any value between cities, countries or climates, based upon a *general mean average*, not less than several thousand cases should be enumerated, and in all instances the exact age in years, months and days should be given. This not having been done, although the results have been tabulated in years and fractions, the next best plan is to prepare the proportions which menstruate prior to any given age. It is impossible by any means of computation to arrive at a perfectly satisfactory result, if the calculations are to be based upon the tables which have been prepared by different observers, especially those which refer to the inhabitants of barbarous or half-civilized countries, where, through an imperfect knowledge of the language and the ignorance of the women in regard to the question of age, accuracy is unattainable.

The question of the influence of climate is by no means satisfactorily settled as yet. That heat does stimulate the uterine system into early maturity has been well established; but how much is also due to difference of race and grade of civilization, has not been. That the early puberty of the Hindoo is in great measure effected by the custom of early marriage, has been claimed, but certainly not proven by comparison with other nations inhabiting hot countries, where this practice is almost universal, or even with those of temperate or cold ones, for in them the laxity of morals amongst the lower classes affords in great measure an equivalent stimulus. It is well established that in all hot countries the maximum age of catamenial inception is earlier than in temperate and cold ones, no matter what the race or moral influence may be. How great this frac-

tional difference may be is yet to be determined, or what is the mean average of puberty in one region as compared with another.

In Paris, the maximum age is fourteen in some tables, and fifteen in others, the numbers in either year being nearly the same. In London, the highest number menstruate at fifteen, and from the tables published it would appear that the general priority was in favor of the former. In the large cities of our Middle States no very extensive or accurate tables have been prepared, so far as known, but it is probable that they would vary but little from those of Paris, the practical difference of precedence being in favor of America.

That heat has an influence over menstrual function is very evident from the history of the following case: Several years since, a young lady who had recently came from a hot country, came to Dr. Boyden to be treated for menorrhagia, with which she had been long afflicted. Soon after reaching this country her menstrual period came on, and being less profuse than formerly, Dr. Boyden determined to try the effects of climate alone. She remained here for three years, was regular, gained flesh, but had no menorrhagia. After her return home the abnormal condition returned and continued monthly, so she resolved to return north, where she now is, in better health and flesh than she ever was in her life.

While the author believes firmly in the stimulating effects of continued heat upon the menstrual function in young girls, he does not see any reason for holding the same view in respect to infantile cases, which appear to depend entirely upon some peculiar condition of the nervous system, by which not only are the organs of generation precociously developed, but the powers of assimilation largely increased, so that bone, muscle, areolar fat, and nerve force, are rapidly produced. Heat has an enervating effect upon infantile subjects until the process of dentition is complete, and hence would be likely to antagonize rather than favor the developments referred to, which most commonly take place during the first years of infancy.

Shortness of stature commonly results from infantile puberty, the ribs and pelvis being developed apparently at the expense of the spine and long bones, although there have been some exceptions to this rule. Where the menses appear at eight, nine, ten and eleven years of age, the growth of the body is not usually interfered with. Velpeau, in his Midwifery, mentions the case of a girl in whom the catamenia appeared at the age of eight and a half years, and says at fourteen she was as tall and robust as the majority of women at twenty.

In conclusion, Dr. Boyden urges upon all physicians the importance of warning parents not to let their children grow up to puberty in ignorance as to the menstrual function, for this may not only lead to great nervous disturbance, but serious disease. He says he once saw a woman of twenty-six years of age whose heart was so frightfully diseased that she was not only a great sufferer, but was looked upon by physicians as a living curiosity, whose heart affection resulted from rheumatic inflammation produced by her having bathed her genitals at the age of thirteen, under the impression that the menstrual flow was a bleeding from some accidental injury, her mother never having warned her of the event, or instructed her as to what she should do upon its appearance.

Myxomatous Degeneration of the Chorion; Profuse Hæmorrhage; Transfusion; Recovery.

Dr. J. Halliday Croom, F. R. C. P. E., F. R. S. E., and J. H. Smith, M. D., late Resident Surgeon, Royal Infirmary, Edinburgh, report this case in a paper read before the Edinburgh Obstetrical Society, June 8, 1887:

The symptoms and pathology of myxomatous degeneration of the ovum have been well and fully described. The authors propose to draw attention to one clinical fact in connection with this condition. The case which is now recorded is remarkable at once for the severity of the subjective symptoms of pregnancy; or the serious hæmorrhage which the condition involved; and, lastly, for the fact that the prompt interference by transfusing eight ounces of blood seemed unquestionably to be the means of saving the patient's life. The record of the case is as follows:

Janet Davis, 26 years of age, was admitted to the hospital January 8, 1887, suffering from hæmatemesis and exhaustion. Hæmatemesis to a greater or less extent had existed for six weeks. She menstruated last in the end of September, 1886; since then she has had irregular uterine hæmorrhages, which culminated in the middle of December in a very profuse flooding. From then till January she had been bleeding constantly. She was quite exsanguine, very weak, pulse thready, and vomited so intensely that she was unable to retain anything, either fluid or solid.

On examining the abdomen there was found to be a well-marked tumor occupying the middle line, extending to three fingers' breadth above the umbilicus. The mammæ present all the usual indications of pregnancy, and the umbilicus is pigmented. The consistence of the swelling is elastic and movable.

Percussion was dull, and a well-marked souffle heard all over the tumor.

An examination by the vagina showed the os to be soft and patulous, and bimanual examination showed a boggy soft tumor with well-marked vaginal pulsation. The least examination caused much pain and great hæmorrhage. From the unusual size of the pregnant uterus, the hæmorrhage, the loud bruit all over, and the consistence of the tumor, with the absence of fœtal parts, the diagnosis arrived at was a vesicular mole.

The vomiting increased in severity, and the hæmatemesis became very urgent. It was therefore determined to bring on labor as quickly as possible and empty the uterus. With this object a tupelo tent was introduced in the afternoon and a firm plug beneath it. On the following day the tent was removed, accompanied by very profuse hæmorrhage, the cervix being only slighty dilated. The pulse of the patient was uncountable. She was sighing, gasping, and restless, with all the other ordinary signs of approaching death from hæmorrhage. The vagina was therefore plugged, copious ether and brandy injections were administered, and the patient left in the operating room. Her condition was so critical it was deemed unsafe to move her in any way. On the evening of January 16 her condition being if anything rather worse, it was determined, as a *dernier ressort*, to try transfusion, and eight ounces of blood were introduced into her circulation by the following method:

The operation was performed according to the manner recently recommended

by Mr. John Duncan. Mr. J. W. Mitchell furnished the blood. The median basilic vein of the left arm having been chosen as being most prominent, it was exposed for about an inch of its course. Two ligatures of carbolized catgut were then passed under the vein with an aneurism needle, and tied in a loose knot, leaving the vein uncompressed. The vein having been then opened in the interval between the two ligatures, a glass canula, two inches in length, with an inch of rubber tubing at its free end, was immediately slipped into the opening and pushed for about an inch into the vessel. The proximal ligature was then tightened over the tube in the vein so as to keep it in position, the lower ligature being also drawn tight, occluding the distal portion of the vein. The end of the canula was now clamped.

The blood of Mr. Mitchell was received into a graduated glass vessel containing a little of the phosphate solution, and floating in a larger vessel of hot water kept a little above the body temperature. As the blood flowed into the vessel, phosphate solution at a temperature of 100° F. was slowly added, and the mixture gently stirred with a glass rod. A large glass syringe holding three or four ounces, previously warmed and folded round with hot flannel, was then filled with the mixture and any bubbles of air carefully excluded.

The clamp being now removed from the vein of the patient, and the blood allowed to fill the canula, the nozzle of the syringe was slipped into the end of the rubber tube of the canula, and the blood injected very slowly and steadily into the vein. When the syringe was emptied, the end of the canula being nipped, it was withdrawn and replaced by a second syringe already filled. The introduction of the blood would take upwards of ten minutes. Eight ounces of the mixture were injected, containing 5½ ounces of blood and 2½ ounces of phosphate solution.

The canula was then withdrawn from the vein, and the ligature which had held it in position tightened, and the wound in the skin having been sutured, a pad of corrosive sublimate wool was applied.

The phosphate of soda solution which was used, was prepared by boiling one pint of distilled water on three occasions at intervals of twenty-four hours. To this one ounce of phosphate of soda in large crystals, which had been kept dry in a stoppered bottle, was added just before the solution was needed, dissolving quite readily at the body temperature. The solution was kept at the proper temperature at the time of operation by a thermometer introduced into the flask. The phosphate solution is thus = 1 in 20 of water. One part of the solution to three of blood will prevent coagulation for some time, and this is the proportion recommended, but more of the phosphate solution in proportion may be added if it is thought advisable.

Before being used, the syringe, vessels, glass rod, etc., should be immersed in corrosive sublimate lotion for some time and then washed out with hot boiled water. To ensure perfect safety the dissection of the patient's vein should also be performed with all antiseptic precautions.

On the following day there was well-marked jaundice; the patient had still a very rapid pulse, but was somewhat improved. Ether was administered, the plug removed, the cervix dilated with the hand, and the uterus forcibly cleared out. The contents consisted of the characteristic cysts, with copious blood-

stained fluid and blood-clot. The amount filled an ordinary wash-hand basin. There was profuse intra-uterine hæmorrhage, which was controlled first of all by direct application of the antiseptic hot douche, and secondly, by perchloride of iron. After the intra-uterine hæmorrhage had ceased, it was found that hæmorrhage was still going on from the torn cervix, which was controlled by firm vaginal plugging. The patient was removed to the ward almost in articulo mortis. Next morning, January 18, the jaundice had faded, and her condition generally had improved. Careful intra-uterine antiseptic washing was carried out, and in the beginning of February she went out quite well.

This case seems to offer various points of interest. (1) The method by which the transfusion here was performed seems an easy and ready method by which it can be adopted with advantage in obstetrics. Post-partum hæmorrhage and placenta prævia appear to be the main conditions in which this operation is especially indicated, but in both of those cases the want of a ready means of transfusion renders the application of this remedy impossible. But, secondly, this case shows what most physicians must have observed in all acute uterine hæmorrhage, namely the immediate value of an increase in the volume of the circulating fluid. This can be obtained without recourse to the method just described, by the simple injection of salt and water in the following manner:

In a case of emergency, such as post partum hæmorrhage or placenta prævia, a teaspoonful of ordinary table-salt to a pint of water boiled and cooled down to about 100° F. is all that is necessary; any syringe that is at hand will be found quite suitable and safe.

If there is time to get a solution prepared, the following will be found satisfactory:

(1) Six per 1000 solution of sodium chloride.
One per 1000 solution of sodium carbonate.

(2)

Sodium chloride	grs. 50
Potassium chloride	grs. 3
Sodium sulphate	grs. 2–5
Sodium carbonate	grs. 2–5
Sodium phosphate	grs. 2
Aquæ	1 pint

Two drachms of pure alcohol to be added.

(3)

Sodium chloride	grs. 60
Potassium chloride	grs. 6
Sodium phosphate	grs. 3
Sodium carbonate	grs. 20
Aquæ	1 pint.

Barnes in his obstetrical operations suggests one teaspoonful of sodium chloride with half a teaspoonful of sodium carbonate to the pint of water at 100° F. Dr. Edward Carmichael suggests that it might be advantageous to use the syphon action for simple saline injections. If the canula were attached to one of Foulis's cans for washing out the bladder, or the can of an ordinary vaginal douche with about four yards of tubing attached, a continuous stream could be got with whatever might be thought desirable. A considerable amount of heat would, no doubt, be lost while the fluid passes through the tubing. If such were the case, of course the solution would require to be made the warmer.

With regard to the amount to be injected, Dr. Edward Carmichael has made an abstract of a large number of cases, and he finds the amount varies from one to four pints. Schwartz puts the amount down at about eighteen ounces.

There is one point which must be carefully noted, viz., that when blood is used a comparatively small quantity, say six to eight ounces, is enough, while with the saline, as has just been shown, a much larger quantity is required.

"We feel sure that in the treatment of placenta prævia, plugging and transfusion in extreme cases before operative measures have been had recourse to will sometimes save life. One such case has certainly come within our observation in the practice of the Maternity Hospital, where the injection of a saline fluid after firm plugging rallied the patient so far as to render manipulative interference possible." Of course the effects of these saline solutions are but temporary; but as it is only a temporary advantage which is desired, in order to enable one to effectually stop the hæmorrhage by manipulative interference, they are efficient. There can be no doubt that many cases of placenta prævia are lost by interference while the patient is completely collapsed from loss of blood. In such cases there are three alternatives—1st, to plug, wait, and administer stimluants; 2d, to turn, deliver partially, leave the child's body as a plug, stimulate and wait; and lastly, as an adjunct to either of these, to transfuse either in the way just described in the the foregoing case, or with a saline solution.

In the case of post-partum hæmorrhage, the obvious disadvantage is that it occurs usually without any warning, and is so rapidly fatal that no opportunity for transfusion occurs. Still cases of prolonged post-partum hæmorrhage, as after labor with twins, uterine inertia, or secondary post-partum hæmorrhage, offers fair scope for the use of transfusion. For in obstetrics it must always be borne in mind that all that is wanted is a temporary advantage, a temporary rally to give us sufficient time to adopt methods of radical cure, and in transfusion just such a remedy is to be had.—*Edin. Med. Journal, October*, 1887.

Metrorrhagia at the Time of Puberty.

Dr. Henry C. Coe writes as follows in the *N. Y. Med. Journal*, August 27, 1887: Sudden hæmorrhage from the uterus is always an alarming symptom, especially to a patient in whom the phenomenon is noted for the first time; when occurring in a child, it naturally creates no small degree of apprehension. While the gynecologist is prepared to expect every variation in the amount and manner of appearance of the menstrual flow, both at puberty and during the climacteric, to the general practitioner these variations are often unexpected, not to say mysterious. Profuse metrorrhagia nearly always indicates to the specialist the necessity of making an immediate local examination, since his experience teaches him that the failure to adopt this as a routine practice may result in the overlooking of a serious pathological condition. It is true that he sometimes fails after the most careful search to find any adequate local or general cause for the hæmorrhage, but this renders the examination none the less obligatory. There are some circumstances under which such an examination is not to be thought of unless it is absolutely necessary. Such are cases included under the heading of this article. In dealing with them it is advisable to avoid, on the one hand, a premature resort to local treatment, and on the other a timidity in em-

ploying the only means of establishing an exact diagnosis by the vaginal touch. The specialist is apt to err in the former direction, the general practitioner in the latter. Where the patient is a child, the physician's duty becomes a delicate and painful one.

Excessive hæmorrhage from the uterus at the beginning of puberty is sufficiently infrequent to awaken some interest. While amenorrhœa, irregularity in the character and time of appearance of the flow, and dysmenorrhœa, are commonly observed, the amount of blood lost, even by plethoric subjects, is seldom sufficient to be compared with the hæmorrhage observed later in life, especially at the menopause.

The following brief notes of a case now under observation will serve as an illustration:

J. B., thirteen years old, is a perfectly healthy girl, well developed for her age, her breasts and pelvis presenting signs of maturity. She is of a full habit and phlegmatic disposition, and has never shown any evidences of sexual precocity or nervous excitability. She began over a year ago to menstruate at long intervals, and since spring the flow has reappeared more regularly, and on one or two occasions has been profuse, but not excessive. There has never been any dysmenorrhœa. She has now been at the sea-shore nearly five weeks, and has during that time been exposed to the usual excitement, late hours, improper diet, etc., incident to life at a fashionable watering-place. She has, however, neither danced nor indulged in sea-bathing. She had just finished menstruating when she left home, her last period dating from June 26. The flow was moderate. She had been at Long Branch two weeks, and had felt as well as usual. She went to bed about ten o'clock on July 13, without being conscious of any abnormal sensations, and was awakened during the night by cramps in the stomach, which were not particularly severe, accompanied by a sudden gush of blood from the vagina. The flow continued steadily, and when Dr. Coe saw her the next morning she presented the appearance of a woman after a smart post-partum hæmorrhage, her night-dress, the sheets and the mattress being literally soaked with blood, while there was a large mass of blood-clot in the bed. From the shape and appearance of the clot, it was evident that it had been retained in the vagina for some time, and had been forced out by the expulsive pains. The blood was bright red in color, and did not have the characteristic menstrual odor. The patient lost a moderate amount of blood during the day, but at the end of the following day the flow had entirely ceased. She presented no symptoms referable to the hæmorrhage, except slight faintness and vertigo on raising her head from the pillow. Her pulse remained full and slow, and her skin retained its healthy color. The loss of blood was estimated at about twelve ounces. The child was kept for three days in the recumbent posture, on low diet, and had twenty-five drops of the fluid extract of *hydrastis canadensis* every six hours. On the fifth day the mistake was made of allowing her to walk down stairs to breakfast, since there had been no show for two days. While eating she felt a peculiar sensation in her stomach and at once returned to her room and lay on the bed. Suddenly there came a gush of blood, as on the first occasion, although the amount was somewhat smaller than before. The use of hydrastis, which had been discontinued, was resumed in doses of twenty-five drops every two hours, without results.

Several napkins were saturated in rapid succession, and the child's mother became greatly alarmed. Ergotin in full doses was administered every two hours, and an ice-bag was applied over the hypogastrium, but was removed at intervals of half an hour. A pint of hot water containing two drachms of alum was carefully injected into the vagina with great difficulty. The little patient had no pain, except an occasional cramp which preceded the expulsion of a clot. Her pulse and temperature were not affected. The flow diminished during the afternoon, but was still excessive, even for an adult. The blood was bright-red in color, and was certainly not menstrual in character. After consultation with Dr. Mackenzie, it was decided not to suggest a local examination except as a *dernier ressort.* The use of the ice-bag was discontinued, but during the next forty-eight hours two alum injections and two drachms of the fluid extract of hydrastis canadensis were given daily. The hæmorrhage gradually diminished, until by the fourth day only two ounces of blood were lost. On the sixth day there was no show and the patient was allowed to sit up and walk across the room, as her appetite was impaired by the close confinement. She felt a little weak, but was not otherwise affected by the loss of blood. She was not allowed to leave her room. Four days after the complete cessation of the last hæmorrhage the regular menstrual flow began at exactly the proper time. There was no pain, but the flow was unusually profuse. She was kept absolutely quiet in bed during the first five days, and received twenty-five drops of aromatic sulphuric acid every six hours, with alum injections night and morning during the first two or three days, neither of which seemed to have the slightest influence upon the menorrhagia. She was directed to continue the use of the acid until the next period, together with Blaud's iron pills. She was then to go to the mountains as soon as she was able to travel, since Dr. Coe is convinced, after careful observation, that the excessive loss is directly due to residence at the sea-shore.

Note, August 20th.—Since the foregoing was written, the patient has been at the White Mountains, and has had no return of the metrorrhagia.

The interesting points in this case are :

1. The amount of blood lost by so young a patient, and the absence of general disturbance in consequence.

2. The time and the irregular mode of occurrence of the hæmorrhage, without any known exciting cause.

3. The fact that the blood came with a gush, and was not preceded by any marked premonitory symptoms. In most cases of uterine hæmorrhage there is a "show" before the excessive flow occurs.

4. The possible influence of locality upon pelvic congestion, especially in young girls. The amount of blood lost was certainly unusual for so young a child, and cannot be explained on the theory of plethora, since the patient, although large of frame and well developed, was not particularly "full-blooded." Moreover, no functional or organic trouble could be discovered which might account for the phenomenon.

It would naturally be inferred that a child, after flowing for nearly three weeks as profusely as a woman after miscarriage, would be quite weak and anæmic. On the contrary, she is apparently as well as ever, and has an excellent appetite.

The hæmorrhage was essentially inter-menstrual in character, being separated by distinct intervals from the preceding and the following periods; hence it can have had no direct connection with the menstrual *nisus*. The fact that the condition was true metrorrhagia, and that the flow began suddenly, diminished under the influence of rest, and then as suddenly reappeared in consequence of slight exertion, suggests a comparison with certain cases of uterine fibroid. May there exist some morbid condition of the uterus or its annexæ, such as a displacement, or a fibrous polypus, or possibly some ovarian trouble? But this is highly improbable, from the fact that the patient has never had a similar experience before; that dysmenorrhœa (or even actual pain) has never been present. If the hæmorrhage had been due to either of these causes, it would not have been so strictly inter-menstrual in its time of appearance. The physical character of the blood is worth noting. It had not the characteristic menstrual color and odor, but was bright red, and coagulated firmly. The coagula which were expelled from the vagina had undoubtedly formed within that canal (practically closed against their exit), because such masses could never have accumulated within a virgin uterus. Palpation of the abdomen showed that the latter organ was neither enlarged nor sensitive; there was no tenderness in the ovarian regions.

An interesting question in this case is this: Is there a possibility that the increased pelvic congestion may be due to climatic influence? This is quite probable, since many ladies say that they flow more frequently when at the sea-side, and young women frequently complain of disturbances of menstruation. Undoubtedly, in the case of a young, impressionable girl, whose menstruation is only recently established, other influences (improper diet, late hours, and unaccustomed excitement) are active in heightening the congestion. But that these alone are not enough to account for the hæmorrhage in this instance, is shown by the fact that it was quite as profuse when this patient was kept in bed.

As regards the practical side of the matter, it may be said that the diagnosis was naturally somewhat uncertain at first, but at the same time, there were sufficient indications that there was no serious local trouble to make Dr. Coe unwilling to suggest an examination, even after the second attack of flooding. It would have been necessary to administer an anæsthetic, and the nervous shock to the little patient would, doubtless, have increased the congestion. Of course, if the excessive flow had continued for several days, and the girl had given evidence of failing strength, it would have been unwise to defer the examination. Notwithstanding the irregular time of appearance of the hæmorrhage, with regard to the menstrual epoch, the congestion was rather hyper-physiological, so to speak, than pathological.

The prognosis in such a case is naturally most interesting to the parents. Is the hæmorrhage dangerous, is it likely to recur every month, and will the child outgrow it? The fact that there was absolutely no disturbance of the circulation proves that the loss of blood was not sufficient to awaken alarm, at least in this particular instance. Since it had never occurred before, and there was no discoverable cause, except the probable influence of climate, he felt justified in promising that the metrorrhagia would probably not recur if a change was made in the residence, and that the menstruation would eventually become normal, although it would doubtlesss be somewhat profuse. In fact, the mother and sisters

of the girl all lose more than the average amount of blood every month. This case, as was stated before, is instructive from the fact that it teaches the necessity of taking into account all the facts, even those which apparently have but little bearing on it, before deciding upon the gravity of a uterine hæmorrhage, and nferring that there is some serious local trouble. The family physician, who is familiar with the constitution and hereditary traits of the patient, is less apt to err than a stranger (even though a gynæcologist), who sees her for the first time.

The treatment should be largely expectant, since the hæmorrhage tends to cease spontaneously. Absolute rest in the recumbent posture, with the avoidance of all disturbing influences, is generally sufficient. The patient ought not to be allowed to get out of bed for the purpose of emptying the bladder or bowel; neither should be permitted to become distended, since this tends to increase the hæmorrhage. On the other hand, violent purgation is equally to be avoided, since it augments the pelvic congestion.

As regards drugs, the fluid extract of *Hydrastis canadensis* has been highly recommended in uterine hæmorrhage, but it did not seem to act so well in this case as ergot. Aromatic sulphuric acid has not given Dr. Coe such good results as others have obtained. Since the hæmorrhage in these cases is an expression of the general pelvic congestion, it is a question if by endeavoring to promote uterine contractions, and hence local anæmia, the existing hyperæmia in the pelvic vessels is not increased. The conditions in the case of a virgin and in that of a multiparous uterus are manifestly different.

As regards the application of cold to the abdomen, as recommended by German writers, it is to be noted that this agent should not be employed indiscriminately. Dr. Coe would not have ventured to use it in this instance if he had not been sure that the hæmorrhage was not the true menstrual flow. Even then the ice-bag was left *in situ* for only half an hour at a time. Its use in such a young patient during the period might be productive of harm, by modifying unnaturally the normal hyperæmic condition of the pelvic organs, just as sometimes occurs in consequence of a cold bath at that time.

Vaginal injections are always extremely distasteful to a young girl, and, in consequence of the anatomical condition of the parts, they can not be given thoroughly. If employed at all, they should be administered slowly, and should be non-irritating. The amount of water and the force of the stream must necessarily be smaller than would be used in the case of a multipara. A simple astringent, such as alum, is preferable. It is a question if they accomplished much good in the case described; they were, at least, not productive of harm.

To summarize: Metrorrhagia at the time of puberty is not necessarily pathological, and rarely calls for local treatment. If dysmenorrhœa is absent, if no general cause can be discovered, and the patient is not profoundly affected by the loss of blood, the chances are that the condition is temporary, and that it will cease when she is placed under proper hygenic conditions, which conditions can only be determined by experiment. Treatment should be mainly expectant, while vaginal examinations are rarely necessary.

The Diagnosis of Febrile Disease in Children During the Early Stages.

Dr. N. FILATOW, in the *Archiv. für Kinderheilkunde*, Bd. viii., Heft. 3, p. 180, says:

It is well known that children more often than adults suffer from attacks of feverishness—that some comparatively trifling ailment is accompanied by a sudden and erratic rise of temperature, which may puzzle both the friends and the medical attendant, and give rise to the suspicion that some zymotic disease is developing. Not only so, but feverishness may be present without any apparent reason whatever, the temperature remaining elevated for 24–72 hours, and the attack passing away without any clue having been obtained as to its cause.

In examining a feverish child with a view to discover the cause of its illness, it is absolutely necessary to strip it, so that every part of its body may be exposed to view, as it is quite possible to fall into a serious error in diagnosis if this be omitted. In some cases it is possible to make a diagnosis at once by examining the surface of the body, as, for instance, in the case of those diseases of the skin which may be accompanied by fever, such as (1) the inflammatory conditions, as erysipelas, erythema, or boils; (2) urticaria, erythema nodosum, and purpura.

It is not easy to overlook the characteristic wheals and papules of urticaria, or mistake this affection for any other, though possibly the superficial observer, on first seeing the fine papules, with much redness, which occasionally make their appearance on the face and forehead in this disease, might think he had a case of measles to deal with. An examination of the trunk and limbs would, however, set the matter at rest, as the pale wheals of nettle rash would probably be characteristic enough. It is perhaps more easy to overlook a case of erythema nodosum, especially when there may be a temperature of 101° or 102° F., and only a few of the nodes present. These are most common on the skin and extensor surface of the forearm, more seldom on the thighs, face, and back. When there is some fever, and the nodules situated over the anterior edge of the tibia, the case may be easily misaken for one of periostitis, as there may be much swelling, redness and tenderness.

Purpura in its various forms is occasionally accompanied by feverishness, and though difficulties in diagnosis do not often occur, yet when there is high fever, with petechiæ, the question of hæmorrhagic smallpox may arise. The author illustrates this by relating a case which occurred in his practice. A boy of two and a half years had high fever (104° F.), convulsions, and a purpuric rash covering his back and extremities. The boy seemed ill, and the possibility of the case being one of hæmorrhagic variola was discussed, though well-marked vaccination scars were against this diagnosis. On the third day the temperature fell, and there could be no doubt it was not smallpox. The child was a weak and ænamic one, and died a year after of tubercular meningitis. In some cases of purpura, the petechiæ make their appearance after the fever has lasted some days, and the possibility of typhus may then be raised. Occasionally relapsing fever is accompanied by petechiæ.

Difficulties in diagnosis may also occur where a high temperature is the result of an acute swelling of the lymphatic glands. The author here refers to an idio-

pathic swelling which occurs apart from any primary irritation in the nasal, buccal, or palpebral mucous membrane, or of inflammatory processes in the throat or ear, and which affects the lymphatic glands situated at the upper part of the sterno-mastoid, behind the angle of the jaw, and just below the ear and mastoid process. It occurs most frequently in children of from two to four years of age. There is fever and swelling of the glands, which, in the course of a few days, reach the size of a walnut; they are tender, and often slightly red. In the course of five to seven or ten days the fever disappears, the glands remain enlarged for a few days, but the swelling generally disappears in the course of a few weeks. Occasionally, but not often, suppuration occurs. The nature of this affection is often misunderstood, and the case is supposed to be one of "mumps," though the diagnosis is not difficult if sufficient care is used. The swelling of mumps occupies the position of the parotid gland, that is, in front of and below the ear, and extending over the face; the glands which are involved in the inflammatory swelling are behind the angle of the jaw, and just below the mastoid. Moreover, in mumps the skin is œdematous, and the limit of the swollen salivary gland ill-defined, while in adenitis the skin is normal, and the limit of the glands can be distinctly felt. Mumps is mostly two-sided; adenitis only affects one side, and lasts three or four weeks. In mumps the temperature is rarely over 102°, in adenitis it is often 103°—104°.

Inflammations of the external and middle ear are both accompanied by feverishness. The diagnosis of otitis media is often difficult, as it is not easy to get a satisfactory view of the membrane in a child who is restless and unruly. It may be accompanied by cerebral symptoms.

In all cases in which there is an elevated temperature an examination should be made of the nose, as there may be nasal diphtheria without evidence of membrane elsewhere, or the child may be in the prodromal stage of measles or influenza.

The diseases of the mouth, which are apt to be accompanied by fever, are *erythematous stomatitis*, *aphthous stomatitis*, and *ulcerative stomatitis*. In the former the tongue and gums are abnormally red and swollen, while excessive quantities of saliva are secreted. It is common during the first few months of life, but especially during the dentition period; there may be convulsions and high temperature. It rarely lasts more than two or three days. During the cutting of the molars the feverish state may last longer, the temperature reaching 104°, while the mucous membrane of the lips, tongue, and cheeks is covered with aphthous patches. Ulcerative stomatitis may be accompanied by fever, lasting seven or eight days. In all feverish conditions in children it is obviously necessary to carefully examine the fauces, lungs, and heart.

Both acute and sub-acute gastric catarrh are sometimes accompanied by fever. The former is apt to supervene after the ingestion of improper food. The author relates how an attack of vomiting and high fever (104.5°), lasting several days, followed a supper at which a boy of twelve years consumed "much sausage and anchovies." A similar attack resulted from a meal of "berries" (kind?) and "table-wine" in a boy of five years. Attacks of sub-acute gastric catarrh, where there is vomiting, constipation, fever (99°—101°), and wasting, closely resemble tubercular meningitis.

Rickets, in an early stage, is also accompanied by an intermittent fever, but it is uncertain if this is due to the rickets or to some accompanying condition.—*Med. Chronicle, May, 1887.*

The Management and Treatment of Umbilical Hernia.

Mr. C. B. Keetley, senior surgeon to the West London Hospital, writing on this subject in the *Annals of Surgery*, September, 1887, says: Almost all umbilical herniæ make their first appearance either in earliest infancy or late in middle life.

A small minority of the umblical herniæ seen in infants are herniæ into the stump of the umbilical cord, and are truly congenital; but the majority are not discovered by their parents until a week or two after birth, and therefore when the stump of the cord has withered up and left only the navel. But even this class of cases depend on a congenital defect. The aponeurotic layer of the abdominal wall must have been deficient. The ventral laminæ have probably failed to unite completely at this part of the length of the linea alba. Although this failure takes place close to the navel in the vast majority of cases, yet it sometimes occurs much higher or even lower.

This paper will confine itself entirely to the common form of umblical herniæ. Its diagnosis is obvious. Its prognosis and treatment depend on each other.

When a student, Mr. Keetley was always taught that in male infants there is such a tendency to spontaneous recovery that a truss or belt and pad are superfluous, and, moreover, that there is a tendency to inguinal hernia which is liable to be increased by the use of any appliance pressing on the umbilicus.

Therefore the teaching then was to leave umbilical herniæ of male infants to nature. On the other hand, female infants were to be treated with a truss or belt and pad. He was also assured that, unless this pad were perfectly flat, it would enter the umbilical hernial opening and increase the size of it.

While all this sounds very reasonable and likely, it is suspected that it may after all, be merely specious, and based not on experience but only on *a priori* considerations.

As the rule rather than as the exception, he has found that where both umbilical and inguinal herniæ occurred in the same infant, the inguinal had preceded the umbilical; and generally both had appeared before any form of truss had been applied to either.

Moreover, in female as well as in male children, there is a great tendency to spontaneous recovery. He is not, therefore, inclined to take sex seriously into consideration in deciding on the question of a truss or belt, but rather gives heed to the presence or absence of signs of digestive disturbance and abdominal pain and discomfort. These are often associated with umbilical herniæ in childhood, and the surgeon can scarcely ignore them even if he would.

With regard to the shape of the pad, almost all those supplied by instrument makers are rounded rather than flat. He has never seen such enlarge the hernial aperture. As a matter of fact they seldom, if ever, press into it. When the child sits up or stands, the contents of the rupture tend to press the pad away from the opening. When the child lies down the pressure of the truss is relaxed by the position, unless the belt or spring is so tight as to be uncomfortable. Most

trusses are tighter when the patient is upright than when he is horizontal. He does not defend distinctly conical pads, but merely such as are gently rounded. A point really of the first importance is to keep the pad in its correct place immediately over the ring. To do this, good strapping is generally necessary, even though the pad be attached to an elastic belt.

Is there ever justification for operating on children with umbilical hernia in order to obtain radical cure? Not generally, but sometimes undoubtedly. In some of these cases the hernial aperture is so large that one can scarcely hope to see spontaneous cure ever take place, and the history may make it clear that the rupture has been getting worse rather than better, perhaps for years, for sometimes, although the rupture is congenital, the patient is an adolescent. Recently Mr. Keetley saw such a case and will probably operate on it. The patient was subject to attacks of colic and vomiting, which she herself and her friends attribute to the rupture. Mr. Keetley is satisfied that her hernia can be cured radically and with safety; and considering her sex, the probability that she will marry some day, become pregnant, perhaps grow fat, while the rupture may increase to a dangerous as well as vexatious and distressing trouble—all these considerations impelled him to recommend an operation.

How should one operate on umbilical hernia of infants? It is seldom necessary to open the sac or the peritoneal cavity, and still less necessary to excise the sac. This is a consideration of first-class importance, calculated to go far to remove prejudice against and fear of the operation. He has shown at the West London Medico-Chirurgical Society, two infants in whom (at the West London Hospital, on March 2, 1885, and March 11, 1886, respectively) he invaginated the sac, refreshed the edges of the hernial aperture and brought them together, in one case with catgut sutures, in the other with a hare-lip pin. In the former he also painted a concentrated decoction of oak bark over the sac, ring and neighborhood, to excite a plastic effusion and reaction. Both cases were thoroughly successful. One was a very large hernia indeed. Both children ceased to suffer from abdominal pains and troubles, to which they had been previously subject.

In the case of two other children also treated in the West London Hospital, and operated on October 6, 1886, and January 31, 1887, respectively, he has tried a new plan, based on Macewen's operation for inguinal hernia. Instead of simply invaginating the sac and pushing it straight back into the abdominal cavity (merely turned inside out and unopened of course) he, in the two latter cases, gently twisted the sac, passed a stout catgut ligature in and out through it, very carefully separated the peritoneum from the linea alba above the hernial aperture, passed a needle up into the artificial space thus made, and with this needle carried the catgut (already threaded through the sac) into the space and out through the linea alba. Then, on pulling the catgut tight, the twisted sac was, of course, pulled into the space between the peritoneum and the linea alba, reduced "*en masse*" as it were. The manœuvre of twisting the neck of the sac was suggested as a substitute for ligature, by Dr. C. B. Ball, of Dublin. The hernial aperture was then, of course, free, and its edges had only to be refreshed and brought together with hare-lip pin and twisted catgut suture. The formerly mentioned catgut was fixed to the latter.

Both cases did perfectly well, excepting that one wound kept open and suppu-

rated slightly for several weeks until the catgut suture came away. The other infant was able to bear a pad and sit up in a fortnight.

Mr. Keetley does not think these cases will ever relapse, for the natural tendency of umbilical herniæ is to recover spontaneously when placed under favorable conditions, and these cases were put under such conditions by the operation.

One thing might be urged against this plan of operation. There is always a point down towards the lower end of the sac where it blends with absolute intimacy with the skin of the navel. At this point he has never succeeded in separating the two. There consequently remains a little open passage at the lower extremity of each hernial aperture, which is otherwise closed. But this little opening has not in any of the four cases tended to get larger. It does not inconvenience the patient, and though it presents an impulse, it gives exit to no hernial tumor. He therefore is content to leave it to time. Even when excising the sac this point presents just the same difficulty to the surgeon, and, as it is situated close to the very edge of the aperture and blended with it, in fact, the effect of excising it is injurious to the neck of the sac, which one always desires to keep intact.

The great majority of adult sufferers are women, middle-aged or older. They are generally fat and have borne children. Although they form only a small proportion of the total number of cases which present themselves at a truss society or a hospital, they include a large proportion of the serious, difficult and deplorable cases. No other word than "deplorable" describes the condition of a poor woman with half her small intestines habitually in the sac of an umbilical hernia. Many cases approaching to this and some worse come to the truss societies. Total or partial reducibility, generally the latter, is common in these cases, in which respect they contrast with the umbilical herniæ of infants. The usual treatment is to fit on a pad or a plate or a bag, according to the size and condition of the protrusion, and to keep them in place with either a truss spring or a broad webbing belt, elastic or otherwise.

Unless it is a member of your own household or an exceptionally intelligent, obedient and manageable patient, do not order a truss, that is to say, a steel spring. Sooner or later she will meet a friend who will persuade to take to a belt. Almost all women of the working classes prefer belts. They are very easy to wear, are soft, and the wearer is often happily unconscious whether or not her belt and pad are doing her good. If they do not hurt her she thinks they are all right, is content and hopes for the best. No wonder, then, that there are so many large and only partially reducible umbilical herniæ. The immense discs or plates of some of these pads and trusses are not required by the size of the hernial aperture, which is generally not very large. They are given for two reasons, (1) because they save the trouble of finding and supplying a truss which will keep a pad of moderate size in place, and (2) because the patients enjoy the feeling of having their stomachs supported by a disc like a dinner plate or a saucepan lid.

Most of these patients desire only to be made comfortable; they do not in the least understand the exact nature of the dangers to which they are exposed, and, though it would be easy to frighten them, it is practically vain to attempt to enlighten them.

When the hernia is irreducible, if it be small. Mr. Keetley orders a hollow pad.

moulded; but if it be large, a bag to lace up. Many patients are, however, used to the hollow "sauce-pan lid" as it may be called, and go about with their irreducible herniæ lying in a kind of concave nest which it makes for itself in the surface of a flabby abdomen, being pressed thereto by the huge concave plate.

Great are the sufferings and dangers and miseries of many of these patients; but the patients are seldom willing to be operated on for radical cure. This reluctance to decide on submitting to the operation may be partially due to two things: (1) This operation has been seldom strongly urged, and has been rather overstated than understated as to its dangers; (2) the worst of these cases can get so much benefit from diet, especially from the Banting system. This probably acts chiefly by reducing the fat in the omentum, mesentery, and about the abdominal viscera. It should be urged on all stout people with hernia, and the majority of people with umbilical hernia are stout. Banting says his own umbilical hernia disappeared while he was under treatment.

As to *the question of radical cure*. the vast majority of cases of umbilical hernia could be cured without any danger from the operation. There would be, he says, danger from the operator, from his assistants, from the nurses, from the patient herself. These dangers are real, though they are diminishing every day. But such dangers are quite microscopic when an operation is done with only one simple instrument like a knife or chisel, and when no one's finger, not even the surgeon's own, touches the wound; when also only one dressing is applied, and even drainage is superfluous. Hence the safety of tenotomy. Hence, also, that of osteotomy, for which all that is required to ensure success is found in a careful surgeon, experienced in antiseptics and moderately practised in osteotomy.

But the radical cure of a hernia with excision of the sac and perhaps of a large quantity of omentum, with separation of adhesions, perhaps the insertion of many sutures and ligatures, some of which may have to be introduced into the peritoneal cavity, this is a very different matter. It must not be hurried: that would be to make failure sure. It may last a couple of hours. During all that time several individuals have to share responsibility and keep up a sustained vigilance. However watchful over his subordinates the surgeon may be, he can scarcely follow their every movement, and attend to his own business at the same time. Damp sponges pass to and fro again and again, and various instruments, some not so simple as a plain and polished knife-edge. Of course this style of reasoning might be employed to prove a trip in a steamboat from Westminster to Blackfriars to be fraught with danger. But, on the other hand, steam navigation is much older than antiseptic surgery. However, just as steam navigation can be and is made safe enough for all practical purposes, so can be the radical cure of an irreducible umbilical hernia in a fat, middle-aged woman. But in order to make it safe, it is essential to approach it with the greatest respect and the strongest sense of responsibility.

*The Prevention of Puerperal Fever in Private Practice.**

In the REPORTER, September 3, 1887, a brief abstract of this excellent paper of DR. BYERS was published, as part of a special report of the Proceedings of the

* Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association in Dublin, August, 1887.

British Medical Association; but the paper is so good that it merits reproduction as a whole. Dr. Byers spoke as follows:

I think it will be admitted by everyone that at the present time no subject of greater importance can be discussed in this Section than that of the prevention of puerperal fever. When one considers the frequency with which this disease occurs, as well as the great fatality with which it is accompanied, it surely becomes our duty to devise measures by which a malady which causes, according to the report of the Commision appointed by the Society of Obstetrics and Gynæcology of Berlin,[1] 10 to 15 per cent. of the deaths occurring in women during the child-bearing age, and which occasions so much public as well as private loss, may be stamped out.

It has been estimated that in every 120 confinements one is fatal within the puerperal month; and, further, it has been stated that 1 per cent. of all confinements end fatally as an immediate or remote cause of the labor. We cannot hope to abolish all deaths from pregnancy and labor, but we should endeavor, and our great aim should be, to prevent deaths arising from puerperal fever. In many lying-in hospitals this prevention of puerperal fever has practically been accomplished; but it is far otherwise in private practice, and it is in the hope of bringing before you measures by which this fell scourge, which costs the lives of so many women, may be banished out of the list of diseases, that this paper is written. Before, however, we can formulate any rules to guide us in the prevention of this disease, it is necessary to have clear ideas as to its nature, so that we may act with definite scientific plans.

Nature of Puerperal Fever.

A great many views have been held at different epochs in the history of medicine as to the nature and causation of puerperal or child-bed fever. Some of the earliest observers (Hippocrates, Galen, our own Sydenham, and Smellie) believed that it was due in some way to the suppression of the lochia. Then, again, others (Puzos) taught that it was caused by metastasis, a view which for a time prevailed in France in the seventeenth and eighteenth centuries. Then came the localist view, according to which the disease had its origin in some affection of the uterus, peritoneum, or veins, and hence arose the terms puerperal metritis, peritonitis, and phlebitis. However, an entirely opposite view soon became popular, and is defended in the present day with the greatest ability by such an able observer as Dr. Fordyce Barker, of New York. According to the doctrine of this school, puerperal fever is an essential specific fever, belonging to the class of zymotic diseases, and is as distinct as typhus or small-pox.

During the past decade the view is gradually gaining ground that puerperal fever is not in its nature a local or a general disease, but that it is really blood-poisoning or septicæmia, due to causes acting, in the great majority of cases, from without, and associated directly or indirectly with the presence of micro-organisms. This is the view which the great majority of obstetricians hold at the present time, and it is worth noting the circumstances that have led careful observers to adopt this doctrine.

1. In 1847, Semmelwiss, the father of the modern view as to the nature of

[1] *Zeitschr. f. Geburtshülfe und Gynäkologie*, vol. iii.

puerperal fever, taught that "puerperal patients were chiefly attacked with puerperal fever when they had been examined by the physicians who were fresh from contact with the poisons engendered by cadaveric decay; that fever ensued in the practice of those who after *post mortem* examination washed their hands in the usual manner, whereas no fever, or but few cases of disease, followed when the examiner had previously washed his hands in a solution of chloride of lime" (*Pepper's Medicine*, vol. i., article by Lusk on Puerperal Fever).

2. In 1850, Sir James Simpson, with extraordinary genius and foresight, wrote a paper on the analogy between puerperal and surgical fever, in which he compared the condition of the uterus after delivery to that of an amputated stump (Simpson's obstetrical works).

3. Then came Pasteur's wonderful discoveries, and their practical application by Lister to surgery with such extraordinary results.

4. The identity of morbid appearances in cases of puerperal fever and in septicæmia.

5. The discovery of the presence of micro-organisms in puerperal fever as in other forms of septicæmia (for literature, see *Edinburgh Medical Journal*, November, 1885, The Pathology of *Post-partum* Uterus, by Dr. A. H. F. Barbour).

6. The antagonism existing between certain antiseptics (notably corrosive sublimate) and bacilli and their spores (Koch's papers).

7. Finally, and most important, the brilliant results obtained in maternities by the routine use of antiseptics. If we look at the records of the maternity hospitals in Copenhagen, Vienna, St. Petersburg, Paris, the Simpson Memorial Hospital in Edinburgh, the General Lying-in Hospital and the British Lying-in Hospital in London, the Rotunda in Dublin, and the Boston Lying-in Hospital in America, the evidence in favor of the rigid use of antiseptics is overpowering.

I shall simply give two sets of statistics, the first of which I owe to the courtesy and kindness of Dr. Champneys. At the General Lying-in Hospital, Lambeth, London, during a period of five years in which Dr. Champneys and Dr. John Williams had charge of the hospital, rigid antiseptic precautions were used, and the total mortality from all causes was 0.7 per cent. During the whole time no single case infected another, and the few septic cases were entirely sporadic. Since the adoption of sublimate the temperatures (taken every four hours, night and day) have been almost uniformly normal, and morbility has been reduced to a minimum. This practical result is of interest when taken along with the scientific observation recorded by Koch, that corrosive sublimate is the most powerful germicide we at present possess. It destroys the bacilli and their spores more quickly and more effectually than any other antiseptic.

The second set of statistics I quote from Parvin. He says, in his *Science and Art of Obstetrics*, p. 504, that Winckel informed him that in the Maternity at Munich, of which he has charge, with several hundred labors annually, and in a place where clinical midwifery is constantly being taught, the mortality, under the use of antiseptics, is only $\frac{1}{2}$ to $\frac{3}{4}$ per cent.

PREVENTION OF PUERPERAL FEVER.

Believing, then, that puerperal fever is a form of blood-poisoning or septicæmia, and looking at the results obtained in maternities by the routine use of antisep-

tics, the question naturally arises what are the sources in private obstetric practice, from which the poison which gives rise to the disease may be conveyed. Setting aside for a short time the question of auto-infection, we believe the channels through which puerperal fever may be conveyed are three.

1. It may arise through defective sanitary arrangements in the house where the confinement occurs.

2. It may be conveyed by the nurse.

3. Finally, the accoucheur may himself be the means of carrying the disease. We shall say a few words about each of these sources of infection, and indicate the means by which in each case we may prevent the puerpera being affected.

1. We think the teaching of Dr. Playfair (*Lancet*, February 5th, 1887), as well as the practical experience of many others engaged in obstetric practice, has made it evident that puerperal septicæmia, identical in its symptoms and course with that which arises from other causes, may owe its origin to sewer-gas; hence it is of the greatest importance that the house in which a confinement is about to occur should be thoroughly put right, in a sanitary point of view, before that event. If we had proper legislation on sanitary matters, such precautions would be unnecessary; or even if people would take the trouble of getting a properly qualified authority to examine the drainage and plumbing of a house they are about to live in, before they enter, many serious illnesses would be avoided. We know that many hold that the only channel through which the poison of puerperal septicæmia can enter the system of one recently confined, is through wounds in the genital tract; but if diphtheria, enteric (typhoid) fever, and certain forms of sore throat can arise from the foul air of sewers, why cannot puerperal septicæmia take its origin from the same source? Further, it is of importance that the lying-in chamber should be properly ventilated.

2. *The Nurse.*—If all monthly nurses were thoroughly taught to believe in the contagiousness of puerperal fever and if rigid antiseptic precautions were used in all those lying-in hospitals in which they receive their training, we feel sure they would soon come to see the immense importance of extreme cleanliness, and look upon the routine of the antiseptic methods not as a drudgery, but as an absolute necessity. A nurse who has an enthusiastic belief in strict antiseptic measures, is worth a dozen who simply carry out the precautions in a mechanical way. I have drawn up the following rules for the guidance of nurses.

Rules for Monthly Nurses.

1. No nurse who has recently attended a case of puerperal fever, or who has been brought in contact with any one suffering from scarlatina, erysipelas, sore throat, or any infectious disease, should commence attendance on a new case without, in the first place, communicating with the doctor, so that precautions may be taken to prevent the spread of infection.

2. No nurse should touch, or make any application whatever to a patient without thoroughly washing her hands in soap and water (using the nail brush), and then rinsing them in the corrosive solution.

3. She will be provided with two solutions. *a.* Corrosive sublimate. ℞ Hydrarg. perchlorid. gr. 154; glycerini f℥ij; Sig. corrosive solution; of this, one teaspoonful added to a pint of water forms the solution 1 in 1,000 for rinsing the

hands. *b.* Carbolic solution. Two table-spoonfuls added to a pint makes a 1 in 20 solution. On the washstand she will place a large basin with water, soap and a nail brush, and a smaller one with the corrosive solution for rinsing the hands. On the same table there should also be placed a small bottle with sublimated vaseline (gr. ii and ℥j), or a pomade with one part of oil of eucalyptus to seven of vaseline. N. B.—All these will be ordered by the medical attendant.

4. Before making an examination (and this should be done as little as possible), the nurse having first washed her hands, and then passed them through the corrosive solution, shall smear the finger with the antiseptic vaseline.

5. All catheters (if necessary), vaginal tubes (glass), syringes, sponges, etc., shall, when not in use, be kept in a 1 in 40 carbolic solution (one tablespoonful added to a pint of water), and the instruments before being used shall be taken out of this solution, and greased with the antiseptic vaseline, and after being used shall be thoroughly washed, and then replaced in the 1 in 40 carbolic lotion.

3. All diapers or other articles when used shall be moved out of the room as soon as possible. All utensils employed, after having been washed, shall be rinsed in the carbolic antiseptic solution.

3. *The Accoucheur.*—In his management of a case, the medical attendant should adhere to all those precautions laid down for the guidance of the nurse. He should make as few examinations as possible, and he should be most careful in his management of the third stage, that is, to follow down the uterus during the birth of the child's body, and to express the placenta, and then keep up firm pressure for some time before putting on the binder. Further, it is a most useful precaution, as against the introduction of air, to make the patient lie on her back as soon as the child is born; a firm application of the binder acts in the same way. If there is any laceration of the perineum it should be stitched. The plan I like best is to place some lint soaked in the antiseptic solution in the vagina, then carefully to use a hot sublimate douche to the parts, and stitch the torn edges by means of a curved perineum needle and silk-worm gut. In this operation the best position of the patient is the dorsal one. Hartmann's sublimate wood-wool diapers are, I think, better than ordinary napkins wrung out of antiseptic solution. When the perineum is being dilated, its stretching may be facilitated by employing a sponge wrung out of hot (1 in 40) carbolic lotion, and by lubricating it with the antiseptic vaseline. We think, with these precautions, it is not necessary to give an antiseptic vaginal douche before the child is born, unless the labor is very tedious, and there is considerable pressure on the soft parts. In such circumstances, a 1 in 40 carbolic douche should be used. It is worth noting, in reference to this matter, that puerperal septicæmia is not common when the labor is an easy one, and, according to Winckel, it is very uncommon in rapid confinements. All these measures have as their object to prevent the entrance of any poison into the system, either before or during the labor. What should be our plans after the confinement?

a. Question of Douches.—I must say I think the use, twice a day, of a hot vaginal (1 in 40) carbolic douche is most grateful to the patient, and tends to keep the parts pure and clean, but it should only be given by a nurse who will adhere to all the rules we have mentioned. I think the sublimate douche should

be reserved for cases in which the hand has been introduced into the uterus (operative midwifery), or in which, from something decomposing in the womb, there is a fœtid discharge. In such cases, a hot sublimate douche (1 in 2,000) used by means of a glass uterine tube, is most beneficial. We think, as[1] undoubtedly there is risk attending the use of the sublimate solution, it should only be used by the medical attendant; the routine vaginal douches employed by the nurse can be rendered antiseptic with carbolic acid. Further, in using the sublimate solution, care should be taken by pressure with one hand above the uterus, and by holding the perineum back with the other, to avoid leaving any of the fluid behind.

b. Position of the Patient.—After labor, for a few days she is best kept on her back, and in passing water she should use the knee-elbow position, which will facilitate the drainage of the vagina. To aid in the contraction of the uterus some recommend giving after labor a mixture of ergot, digitalis, and quinine. I have used this combination with advantage.

The above precautions are based upon the view that all cases of puerperal septicæmia are in their origin heterogenetic, that is, the infection comes from without; but of course many hold that in certain cases the disease may originate within the patient's body, or be autogenetic. This type of case is well described by Dr. Macan in his Report of the Rotunda Hospital for 1883. "In cases of auto-infection, the woman is most frequently a multipara, the labor long, and perhaps complicated with a dead and putrid fœtus, or with fibrous tumor or cancer of the uterus, or there has been *post-partum* hæmorrhage from a badly contracted uterus, followed by the formation of clots, or the retention of portions of the membranes or placenta. The uterus being badly contracted, and the abdominal walls very relaxed, air enters the vagina, and decomposition of the contents of the uterus is the result." In such cases, if the fluid does not get away, it undergoes further decomposition, becomes absorbed, and poisons the patient; but on the other hand, thorough drainage and washing out the uterus with a hot 1 in 2000 sublimate solution, if done early enough, will generally cause the bad symptoms to disappear. But even in such cases, may the cause not come from without, the intra-uterine clots, dead fœtus, placenta, etc., forming a medium in which the micro-organisms from without find a soil in which they can rapidly grow and multiply? In support of the view that puerperal fever is a heterogenetic disease, I cannot do better than quote the following passage from one of the most brilliant writers of the American Obstetric School, Dr. Parvin. "The doctrine of auto-genesis," he writes, "is a confession of ignorance, the creed of fatalism, the cry of despair. It is more rational when we meet with cases of puerperal septicæmia whose origin we do not know, but which have the same history as others—the source of which we can trace to an external cause, and which have the same evolution and the same infecting power—to conclude that they too come from like sources, though the connecting thread is so fine that it eludes our vision, than to erect an altar to the unknown god of auto-genesis, and imagine we have explained the mystery. Self-infection means that the house sets itself on fire, and that the powder maga-

[1] On Mercurialism in Lying-in Women undergoing Sublimate Irrigation. W. R. Dakin, M. D., *Obstetrical, Transactions* for 1880.

zine is exploded without any mischievous spark. What security can the practitioner give his patient when the foe which brings swift death is created within her, and when she kills herself? This doctrine of the auto-genesis of puerperal septicæmia is to my mind the very pessimism of obstetric medicine. Why should the city guard its gates when the enemy can already be in the citadel and begin the battle there?"

In those cases, so well portrayed by Dr. Macan, in which some hold the disease arises within the patient's body, and in which, a few days after delivery, the temperature rises, with or without a fœtid discharge, I have had admirable results from washing out the uterus with a hot sublimate douche followed by the insertion of one of Ehrendorfer's iodoform bougies; in other words, providing drainage for pent-up secretions, and rendering the parts aseptic.

In connection with obstetric practice, the question is being frequetly debated in the medical journals, "How soon after being exposed to an infectious disease may a practitioner take charge of a confinement?" Dr. French,* Minneapolis, sent a memorandum asking "How soon after exposure to sepsis may the accoucheur safely resume practice?" to a number of the leading members of the profession in America and Europe. Some replied (Thornton, Savage, Hegar) that time was a necessary factor, accompanied, of course, by thorough cleansing; while others (Emmet, Thomas, Marey, Battey, Goodell, in America, and Martin, Schroeder, Volkmann, Nussbaum, and Esmarch, on the Continent) replied that time was non-essential, and that thorough disinfection can be at once accomplished. Esmarch, in his letter to Dr. French, writes as follows: "If you have thoroughly disinfected yourelf, you can immediately enter upon obstetric practice. Time does not destroy septic dirt." Before the use of antiseptics in midwifery, if a practitioner came across a case of erysipelas, scarlet fever, abscess, etc., he was advised to give up his obstetric practice for a time—a very comforting piece of advice to a struggling medical man, and all the more galling when he observed, if it were a consulting physician who tendered this opinion to him, that the latter did not hesitate to see cases of scarlatina, measles, or pneumonia, in the same day; while if it were a surgeon who recommended the same course, he did not give up his practice for a time, or hand over his operations to another, if he chanced to have a case of erysipelas or pyæmia. Further, in many country districts, it is impossible for the general practitioner to take such a course. My own opinion is that a thoroughly conscientious man may, after having attended an infectious case, if he change all his clothes, if he take a warm bath, and if he use most rigidly the antiseptic methods, soon resume obstetric work. Those who employ the antiseptic precautions will feel they have used every means to prevent the carrying of the contagion to their patients.

It has been said that the best way to prevent *post-partum* hæmorrhage is to act in every case as if its occurrence was imminent; and if we regard puerperal septicæmia as likely to develop, we ought, in every case, to take precautions to prevent the poison reaching the patient; and to destroy it, if it comes in contact with the patient, before it enters her blood and tissues. This is the aim of antiseptic midwifery.

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* *Journal of American Medical Association*, July 1885.

V. SURGERY.

Treatment of Hernia by the Use of Sponges.

C. WEIL has successfully treated a number of cases of hernia by means of the elastic pressure of a sponge. He cites a case of a very large right-sided scrotal hernia, in a man sixty years old, which was reduced in this way after taxis had failed. A large sponge was chosen, and placed over the hernia. A woven rubber band was next applied as a spica of the groin. In fourteen days the hernia was completely reduced. The writer thinks that this method is not only good in reducing herniæ, but is also useful when reduced in keeping them in place. This method with modifications may be used in all the different forms of hernia. —*Prager med. Wochenschr.*

Varicocele—A Simple Operation for Its Cure.

Dr. HUBBARD W. MITCHELL, in a communication to the *Med. Record,* October 22, 1887, says:

The dilated and tortuous condition of the spermatic veins of the testicle, usually known as varicocele, is a disease that is met with not unfrequently. The dull, aching pain in the testicle and cord, and in the back, and the occasional melancholic symptoms it gives rise to, often render the sufferer incapable of attending to the active duties of life, and lead him sooner or later to seek advice of the surgeon. Horseback riding and outdoor labor aggravate this state of things, and present a complete bar to entrance into the military or naval service. Patients with varicocele suffer pain after coition, and hence often believe it leads eventually to impotence. Varicocele occurs more frequently upon the left side than upon the right, owing to the anatomical disposition of the veins. The only effective treatment is a radical operation for the obliteration of the dilated veins.

A glance through the surgical text books and medical journals written during the past twenty-five years, will show that a great number of operations have been advocated for the radical cure of varicocele. Many of them are ingenious, some positively barbarous, and every one capable of great improvement. It is now generally admitted that the best and safest method of radically curing varicocele is by the *subcutaneous ligation* of the enlarged veins.

During the past fifteen months Dr. Mitchell has done this operation twelve times in private practice. The first six cases were done by the aid of a small needle, threaded with silk or catgut, or with a long needle and a silk loop. While the results were good, the method of operating was extremely unsatisfactory. The desire to simplify the operation and render it expeditious and easy to perform, led him to devise a new varicocele needle.

While there are other needles already in use similar to this, yet this possesses

some new features and decided advantages. It has a long and slender shaft, and a flattened oval-shaped point. The point, and sides, as far as the eye, are ground to an exceedingly fine sharp cutting edge. The eye is large and long, to readily allow the threading of the ligature. The handle is octagonal, and tapering, to permit a firm hold upon it, and flattened on the sides to correspond with the flattened side of the point, so that when the point is buried in the tissues one can tell how to guide it.

By the aid of this little instrument the operation for the subcutaneous ligation of the spermatic veins is extremely simple, and may briefly be described as follows:

The hair on the affected side of the scrotum may be shaved off front and back, and the parts perfectly cleansed. A few minims of cocaine, 4 per cent. solution, are injected under the skin at the seat of operation.

The patient may stand up (if he is resolute enough), or, better still, lie down on a bed, sofa or table. The operator now isolates the vas deferens, and holds it with his left hand to the inner side of the scrotum. With his right hand he takes the needle threaded with a sufficiently long silk ligature, previously boiled to make it antiseptic, the two ends of which he holds firmly with the handle. Holding the flattened point perpendicularly, he plunges it quickly through the scrotum, the point with the ligature sticking out behind. He can now let go the vas deferens, and draw one end of the ligature out of the orifice of exit, and out of the eye of the needle. He now withdraws the needle *back to, but not out of the orifice of entrance.* The point of the needle is now carried *subcutaneously* around the veins, and made to emerge *exactly* at the orifice of exit. Here the ligature is quickly and easily threaded into the *large eye*, and both withdrawn through the orifice of entrance. Carefully wash away any drops of blood that may ooze out, and tie a tight, firm knot, which, if properly done, will completely occlude the veins. The ends of the ligature may be cut short, and the knot allowed to sink into the wound out of sight, where it remains permanently. A bit of adhesive plaster over the minute wounds completes the operation, and the patient may remain for a few days in bed. All this is done so simply, quickly and easily that the operation requires less time than the description. The author's last six cases were done with this instrument, and so far he has every reason to be satisfied.

The especial points of this needle to which he asks attention are the oval-shaped point and cutting edge, with the *large eye.* This large, elongated eye renders a silk loop unnecessary, as the ligature can be easily threaded into it at the second step of the operation.

The instrument described by the author is a useful one, but of course the operation may be done equally well, if less easily, with a perineum needle, or a sharpened eyed-probe.

Resection of the Intestine for Fistula.

In a paper in the *Journal of the Am. Med. Association*, December 3, 1887, Dr. F. Henrotin, of Chicago, Ill., says that about five weeks ago he was called to Pullman, in that State, to see a patient. On his arrival he found the patient affected with fæcal fistula. The history of the case was as follows:

The woman had been affected with an obstruction of the bowels for about fifteen days. The obstruction was evidently in the left inguinal region, as a mass was found there, which the physician in charge tried to reduce. Failing in reducing it, a physician from Chicago was called in consultation, who went to Pullman, and by dint of manipulation they succeeded in reducing this hernia. Immediately succeeding the reduction of this femoral hernia, the patient complained of a great deal of pain, and a truss was fitted over the place where the hernia had existed. This truss, being somewhat tight, gave rise to a great deal of pain, and after two or three attempts at periodical times to wear the truss it was laid aside. The parts by this time were considerably swollen and required attention. In four or five days an abscess over the part had formed. The pus was evacuated, and within forty-eight hours there was seen a liquid substance oozing from the wound, and the latter developed into a well-marked intestinal fistula. The fistulous opening was very large at the time he saw the patient, and at the outer part would easily admit the thumb. The woman was very much emaciated, thin and extremely weak. She had then had this fistulous opening about eight days; the parts around the opening were excoriated, and the edges of the wound were in a gangrenous condition. The discharge from it was excessive, and consisted of large quantities of a greenish fluid, mixed with which was a yellowish emulsive substance, having a slight fæcal odor.

The weakness of the patient and her general condition, as well as the appearance of the wound, made Dr. Henrotin decide upon an operation, which was performed the second day following. There was no opportunity to do the operation under antiseptic precautions. The surroundings were not the best for such an operation, but as far as it was possible antiseptic precautions were thoroughly carried out. The instruments were all very carefully gone over beforehand, and the sponges and all material used were thoroughly and carefully prepared.

He made an incision about three and one-half inches in length in the linea alba of the lower abdomen, so as to get sufficient room, and entering the abdomen, slipped a large sponge into the opening, so that the end was immediately beneath the attachment of the bowel at the opening; he also packed in two or three little sponges at the side of this long sponge, in order to protect the parts as much as possible. The large sponge reached from a little below the fistulous opening to the opening in the abdomen, so as to cover the parts thoroughly. The ring of the intestine was then detached by slipping a finger around it and gradually working it apart, and in this way he was able to grasp the intestine and bring it to the surface. To make sure that the intestine would not slip, he had introduced a female catheter through the external opening four or five inches into the bowel, so as to be perfectly certain of bringing the parts to the opening without delay. Everything worked very satisfactorily, and the bowel was brought to the surface and outside upon the abdomen in a very few moments. The only part in which there was any difficulty was in detaching the bowel from the opening. Never having tried the procedure before, he was surprised at the amount of force necessary to detach it. When the bowel was brought to the surface, he packed sponges around it, and held the edges of the wound together in such a way that there was no possibility of further infection during the fixing up of the bowel. When, however, he had brought the bowel to the surface, he found that there

was a very large and jagged opening in it, and that the efforts at detachment had served to tear it almost down to the mesentery.

There apparently remained nothing to do but to take away the part and résect the intestine entirely, which was immediately done. Taking the bowel up carefully with prepuce forceps on each side, about three-fourths of an inch beyond the furthest point of the tear, he cut the bowel off square on the side of the tear, leaving one-fourth of an inch margin. The forceps answered the purpose admirably, each blade being covered with a soft rubber, so as to leave no impression on the bowel. He took them off once or twice during the process of stitching, and found there was not too much pressure being used, not enough to wound or injure the bowel. Having cut off the bowel down to the mesentery, he thought it best not to injure the mesentery, which good judgment proved a great element in the success of the case. When the mesentery was reached, he simply cut right straight across along the edge of the mesentery, and left it as nearly whole as possible, cutting directly in a line between the bowel and mesentery. The intestine was then stitched up. After stitching up the bowel and fixing up the mesentery, the bowel was returned to the abdominal cavity, and not finding any debris or blood, he stitched up the abdominal wall tightly. The long narrow sponge was left from one opening to the other, and apparently not a drop of oozing had taken place in the abdomen. This long sponge was replaced with a flatter one before stitching the abdomen, so as to protect it from any bleeding from stitch-holes, and in a short time he had the wound closed, and had the satisfaction of knowing that there was no blood in the abdominal cavity.

As regards the original opening, he simply scraped it off under Poupart's ligament, refreshed it, and introduced through that opening a drainage tube, closing the central wound entirely. He also introduced a second tube into a sinus that went up along Poupart's ligament, along the inguinal canal.

The case did remarkably well. At no time was there a temperature beyond a few fractions of a degree above 100. The patient never even vomited. There was no tympanitis, no bad symptom whatever. The patient is now, after several weeks, doing quite well. She was 59 years old and delicate, but she is apparently very nearly in her normal health, except that she has some colicky pains and occasionally a loose stool; whether this is due to a stricture or not, and may prove permanent in character, he is unable to say.

The after-treatment needs no consideration. The dressing put on was merely the ordinary dressing of laparotomy after an ovariotomy—dry iodoform, an antiseptic cotton pad, and antiseptic gauze outside. The dressings were only disturbed once every four or five days. There was a little abscess in the abdominal wall, but it gave no trouble and healed in a few days.

The particular point to which attention is directed is the propriety of operation. The first item of importance, which was very evident, was the extreme debility of the patient. She was naturally a very weak woman, was 59 years of age, and was moreover subjected to the constant drain of a discharge from the fistula; and whatever was to be done had evidently to be done soon. Physicians who had seen the case and who assisted at the operation, were also of that opinion. Dr. Henrotin does not know the amount of the discharge, because he did not see the patient long enough, but it was considerable; the cloths

and cotton padding, and dressings that were put on had to be changed several times a day, and when the abdomen was pressed above the wound this greenish fluid bubbled up in large quantities, mixed with a yellowish substance which he considered to be chyme, or rather chyle. What else was to be done? In this woman plastic operation would have failed on account of the amount of fluid and the character of the opening, its edges being gangrenous, and of a pulpy greenish-yellow. The only way in which that patient could have been kept alive would have been to have given her food by the mouth, and tried to find the lower opening, injecting food in that portion of the bowel, and it would have been very hard to tell which was the lower opening. The anatomy of the abdominal organs is such that one cannot always tell whether he is going up or down, under such circumstances. But this case had to be taken care of, and something done at once. The character of the fluid denoted that the opening was extremely high up; there was no dark substance, nothing that would represent fæcal matter, no appearance to indicate that it was low down; and the constant drain and the amount of fluid indicated that it was high up, because the villi of the intestines and lacteals take up the fluid as it goes along, and the lower down one goes into the bowels the more the fluid disappears. For these various reasons it seemed that the one thing to do was an immediate operation; that in view of the weakness of the patient, the character of the fluid and the evident high situation of the fistula, any other procedure would be followed by failure.

The reason of the resection of the bowel is evident to any one who sees the specimen. It certainly would not be very good policy to try and patch up a bowel torn up in the way this was. As regards the way in which the operation and the stitching of the bowel was done, and the way in which the mesentery was treated, he says that in taking the bowel out he found that the serous coat was extremely soft and pulpy, and, on trying to put a stitch through it, the least little pull was sufficient to tear through the serous coat. In stitching up the bowel, he proceeded in the following way: He put one row of stitches made of silk through the whole thickness of the bowel, the three coats. He started the stitches on the edge on one side and then came out with them, so as to bring the free ends on the inside of the bowel. He then tied them. This was a very easy matter when the two portions of the bowel were held up by the forceps, and after thorough cleansing, the two parallel edges were sewed together, each stitch being put so that it would fall inside when the bowel was brought around. The stitches were placed a little over a sixth of an inch apart, and he had no difficulty in going round the bowel in that way, always going through each of the three coats. When he came to the last two stitches he began on the outside, and brought the needle through what was left of the ununited inside of the bowel, then started another needle through the same way, and brought them both out and tied. The last stitch he put in the same way, bringing out the needles from each side through a little crevice and tying as close as he could, and then it was easy to take the knot and insinuate it between the edges of the last two stitches, so that it was tied on the outside. He then put in a suture of continuous catgut stitched only on the outside serous coat. After each stitch his assistant drew the catgut snug to hold the ground he had gone over, and so managed to surround the whole bowel without difficulty.

One great factor toward the favorable issue of the case was that the woman hardly stirred, and did not vomit throughout the whole operation, and that the bowels at the time were almost absolutely flat. That has a great deal to do with the success of such cases.

The Induction Balance and the Telephonic Probe; with Report of Six Cases.

Dr. J. H. GIRDNER reports the following cases in which he has used the induction balance and telephonic probe: Case I.—A gentleman, while serving as colonel in the Federal army during the late war, received a gunshot wound in the breast at the battle of Cedar Mountain. The bullet, a musket ball, he thinks entered the chest at the left sterno-calvicular articulation, throwing the clavicle upward from its articulation about two inches, from which position it was properly replaced by the surgeons at the time of the accident. It was the opinion of these men that the bullet had passed directly backward and a little outward, and was lodged underneath the scapula of the same side, and no attempt was made to remove it.

After a few weeks an abscess formed, and pointed between the fifth and sixth ribs of the left side, at their junction with the sternum. The pus from this abscess was supposed to have originated at the wound of entrance, and to have found its way to this point by passing down on the inside of the chest-wall. Both this and the wound of entrance healed after a few months, and the colonel returned to duty. With the exception of a slight comparative muscular weakness of the left arm and occasional neuralgic pains, he has remained well ever since, so far as this wound is concerned.

Last January Dr. Girdner made a thorough examination of this patient with the induction balance, with the following results: When the center of the *induction area* came to a point in front of the spine of the left scapula, and a little to the left of the supra-scapular notch, there was a faint, but perfectly distinct, response in the telephone, which was verified by Dr. Banks and Dr. Hitchcock, who were present at the examination, and thus the induction balance pointed out the location of the bullet about where the army surgeons had supposed it to be. Going now to the front of the chest, the exploring coils were passed over the surface without result until the *induction area* was brought directly over a point an inch above the cicatrix left by the opening of the abscess above described, when a loud, high-pitched musical sound was produced in the telephone, showing the very close proximity to the surface of a pretty large mass of metal.

It should be added that this patient was exhibited at the New York Academy of Medicine on February 3, and so loud and distinct was the response, that the president of the Academy, Dr. Jacobi, and others of the Fellows present, had no difficulty in locating this "*sonorous spot.*" Now, as nothing except the presence of metal can produce a response in the telephone of the induction balance, it follows that two bullets have been discovered in this patient, or, what is more likely, one split into two pieces. The author is the more inclined to the latter opinion, owing to the manner in which the clavicle was shattered at the time of entrance of the bullet, all the conditions being present for the splitting off of a portion of the bullet, which was then thrown directly downward, and lodged at the point

indicated by the balance, thus being the cause of the abscess which formed at this point. Further, the patient says that on the day following the accident, and for several days, the skin showed a deeply stained ecchymotic tract, leading from the point of entrance to the point where now the bullet is discovered. Inspection and palpation of this point also show an enlargement or slight bulging out over the "*sonorous spot*," and pressure here is also painful. As these bullets cause no inconvenience, the patent has not consented to their removal, nor is it advisable; yet, if he consents, Dr. Girdner says he will not hesitate to follow out the indications of the induction balance in his operative procedures for the removal of these two masses of metal.

Case II.—The details of this case are fully given by Dr. C. W. de Lannoy in the *N. Y. Med. Journal* for August 27th, page 229.

Case III.—A young man received a pistol-shot wound in the right arm, the ball entering about the point of insertion of the deltoid muscle. The patient was under the care of Professor William T. Bull, by whom Dr. Girdner was invited to examine him a few days after the accident happened. Exploration of the arm and axilla with the induction balance gave negative results, but when the coils were brought over a point on the top of the shoulder in front of the origin of the deltoid and about the junction of the acromion process with the spine of the scapula, a response was had in the telephone which was distinct and heard by several medical gentlemen present besides Dr. Bull; pressure over this spot also caused pain. The patient told the author that as he saw his assailant approach from the front prepared to shoot, he turned his right side to him and threw up his right forearm on a level with his eyes, and thus the bullet, which would otherwise have struck the face or head, was received in the attachment of the deltoid, and the bullet, following its horizontal course, would naturally traverse the entire length of the deltoid while the arm was held in this horizontal position. The shoulder joint not being involved and the patient's general condition being so good, it was decided not to do an operation for the removal of the bullet, and the patient recovered shortly, still carrying the bullet in his shoulder.

Case IV.—A man, forty-four years old, received a bullet in the right ankle at the battle of Chancellorsville. From a copy of the history of the case furnished through the kindness of Professor T. M. Markoe, whose patient he was, the following history was obtained.

"Right ankle is much enlarged and tissues about it thickened and indurated The lower ends of both tibia and fibula show increased size and involucral action; movements of ankle joint limited owing to surrounding enlargement; one inch and a half above tip of external malleolus is a sinus which discharges a small amount of pus daily and admits a probe the distance of one inch and a half in the direction of the center of the limb."

When an ordinary silver probe was passed into this sinus, its walls for a greater part were found to be composed of dead bone, and the bottom of the sinus everywhere communicated to the hand the presence of dead bone or some hard substance, and no man could tell certainly if it were lead or dead bone which he was probing, or if indeed there was any lead at all in the wound, a condition of things such as inspired Nélaton to devise the porcelain probe. The Nélaton probe was next introduced, but no staining of the porcelain could be

found, nor was this surprising, since the bullet had lain in its present position in the tissues for twenty-four years, and, as was shown on its removal, was thickly covered all over with a coating of lead salts, so that the porcelain could not be stained by the metal.

The telephonic probe was now introduced, and after probing a hard substance for awhile, which was bone, without response, the bullet was struck, and a loud, distinct "click" was heard in the telephone, announcing, beyond the shadow of a doubt, the precise location of the missile.

As an audience was present which had been invited to see the induction balance used, an exploration of the ankle with the coils was begun, and soon a sonorous spot in front of the ankle found which gave a very clear sound, and was heard by Dr. Markoe, Dr. Peabody, and others. As Dr. Markoe held the telephone to his ear, listening to the unmistakable announcement by the bullet of its presence in the man's leg, he enthusiastically said to the audience: "Gentlemen, I wish every man in this room could hear what I am listening to at this moment." This sonorous spot was, of course, the point on the skin nearest to the bullet. Dr. Markoe now enlarged the sinus with the chisel and hammer, and removed from between the tibia and fibula a thickly incrusted leaden bullet weighing 200 grains. The patient made a good recovery.

Case V.—This patient was examined at the invitation of Dr. William T. Bull. The patient was a woman, and the history is that seven years before, while fluid was being drawn from the right chest cavity by an aspirator, she suddenly started up from her seat and broke the needle off so close to the chest-wall that it was not possible to recover it. She was not told of the accident at the time, and having made a good recovery from the pleuritis, suffered no inconvenience until after she was told that the needle had been left in her body, which was one year before Dr. Girdner saw her, and six years from the date of the accident.

She was a professional nurse of a very nervous temperament, and soon after she knew of the breaking off of the needle, began to complain of a severe sciatica on the same (the right) side, which she attributed to the presence of the needle, which she believed had found its way to the sciatic nerve, where its point was constantly pricking it. A thorough examination of the whole course of the sciatic nerve with the induction balance failed to discover any sonorous spot, and at no point in the course of the nerve could any response be obtained.

This negative evidence settles the question beyond the shadow of a doubt, that the needle is not causing the pain of which she complains, for it is impossible that a needle of the dimensions of that left in her chest-wall should lie anywhere in contact with the sciatic nerve without being instantly detected when the induction area was brought over it. Neither the chest nor any other portion of the body was explored for the needle.

Case 6.—A man, while seated in a chair, was handling a 22-caliber revolver, and accidentally fired it. The ball entered the right thigh in the middle third, and to the inner side. His physician, Dr. U. G. Hitchcock, was called, and by him Dr. Girdner was invited to see the patient.

Leading from the wound of entrance there was a tender track, which could be followed by the pain it caused the patient to press on it with the fingers, and which seemed to be the course followed by the bullet. This tender track led

downward and outward for the distance of about six inches, where it seemed to terminate, and the fingers, passed lightly over the part, seemed to detect a small, hard mass at this point, which was thought to be the bullet. As no ordinary probe could be made to follow the long, narrow, tortuous channel left by the bullet, the telephonic probe was now applied, using a straight surgical needle of suitable length, instead of a blunt probe. After making proper connections with telephone and steel plate, the needle was plunged through the skin and underlying tissues at right angles to the surface, at the spot where the sense of touch indicated that the bullet was; when the needle had entered the thigh to the depth of about an inch and a quarter, it touched the ball, the contact was announced by the click in the telephone, and thus the presumption as to the location of the bullet was verified. With the needle's course as a guide, Dr. Girdner cut down and came at once to the bullet, which was removed without difficulty.

The induction balance was not used in this case, because the sense of touch suggested the spot on the surface opposite to the bullet, which the probe proved to be correct; but had no such evidence been obtainable by manipulation, then the balance would have been resorted to, and by its aid the location of the bullet would have been determined through the sense of hearing instead of touch—*N. Y. Med. Journ., Sept.* 17, 1887.

Genito-Urinary Surgery.

Report by Dr. ABNER POST in the *Boston Med. and Surg. Journal*, Nov. 17, 1887.

Litholapaxy in Boys.—Dr. KEEGAN,* of Indore, Central India, has published a series of papers on the subject of "Litholapaxy in Male Children" during the last four years, and various other papers† and reports on the same subject have recently appeared. The writers agree upon the possibility and advisability of Bigelow's operation in very young children. Dr. Keegan would as soon think of performing lateral lithotomy on an old man with a small uncomplicated stone, as on a boy whose urethra would admit the passage of suitable lithotrites and evacuating catheters. The reports referred to here represent a total of eighty-nine cases of boys between the ages of fifteen months and eleven years. One case only was fatal, and that was a case of Dr. Keegan's in which the calculus was formed about a stalk which had penetrated the bladder through the rectum. It was a case better suited to lithotomy, and would have been so treated had the history been more carefully considered on his admission to the hospital.

The calibre of the urethra in boys reaches a much larger size than has been attributed to it. Dr. Raye operated on a boy twenty-three months old, using a No. 9 (English) lithotrite and evacutor. It passed with perfect ease and without any incision of the meatus, which was of comparatively monster calibre. The infant recovered without trouble of any sort. Dr. Raye's last case was a boy eight and a half years old. The smallest instrument in his possession was a No. 8. It

* Indian Medical Gazette, May, 1884, June and September, 1885, June 1886.

Lancet, 1886, ii. 1068, 1122, 1168. Also reprint.

† W. J. Walsham, F. R. C. S. Litholapaxy v. Supra-pubic Lithotomy in Male Children. British Medical Journal, October 15, 1887, p. 818.

Surgeon Major Goldsmith. Indian Medical Gazette, May, 1887.

Raye, D. O'C. Cases of Litholapaxy in Male Children. Indian Medical Gazette, Calcutta, 1887, xxii, May, 129-132.

would not pass the meatus, which was incised. The instrument then passed rather tightly as far as the bulb, beyond which it could not be passed without more force than seemed advisable. A No. 7 would have passed; but he had no such instrument. In Mr. Willett's case, quoted by Walsham, a lithotrite and catheter of No. 6 (English) calibre were used successfully upon an infant of fifteen months. Dr. Keegan has passed a No. 7 (English) catheter into the bladder of a boy only eleven month old. It may seem strange that a false estimate of the normal size of the urethra in male children should have existed until very recently, but it is really no more strange than that surgeons should have believed up to the discovery of Otis that the male urethra is much smaller than it really is.

Dr. Keegan states that, while no hard and fast rule can be laid down, the urethra of a boy from three to six years old will admit a No. 7 or 8 (English); that of a boy from eight to ten years old a No. 10, 11, and even sometimes No. 14 (English); but age cannot always be depended on as the measure of urethral capacity. In some children of four or five it is unsafe to pass a No. 7 lithotrite, although an instrument of this size will sometimes pass readily into the bladder of a boy only two years old.

The objections which have been urged against litholapaxy in male children are:

(1) The undeveloped condition of the genito-urinary organs.

(2) The small size of the bladder.

(3) The narrowness of the urethra, and its extreme sensitiveness and liability to laceration.

These objections Mr. Walsham considers chimerical. Thus:

(1) As regards the undeveloped condition of the genito-urinary organs, the small size of the prostate is altogether in favor of the operation, since, as we all know, an enlargement of that organ is one of the chief difficulties attending lithotrity in old men.

(2) The bladder is, no doubt, smaller in young children than in adults. But many lithotritists prefer to work with only two or three ounces of water in the bladder; and, in boys only three or four years old, the bladder is quite roomy enough to permit the efficient working of a small lithotrite. Such was found to be the case with the bladder of the infant fifteen months old, operated on by Mr. Willet. Further, a child's bladder is more expansive, and commonly in a healthier condition than that of an adult, and, therefore, better able to bear over-distension than the bladder of old men. But there need be no fear of over-distension if a small-sized aspirator is used, or if care is taken to force in only a limited quantity of fluid, and to employ a full-sized aspirator.

(3) The third objection, the narrowness of the urethra has already been considered.

Mr. Walsham believes the sensibilities of the urethra in children to be overrated; since, as far as he has observed, boys, when they have once got over the timidity of having an instrument passed, bear it quite as well, as if not better than lads about puberty, and adults. Boys have sometimes felt so little pain that they have much preferred being sounded without chloroform.

As regards the actual performance of the operation the same rules hold good as in adults.

But certain points are worthy of special notice. Mr. Walsham thinks that the lithotrite should be fully fenestrated, and the female blade well beveled so that no detritus may be retained between the blades, and the risk of nipping the mucous membrane of the bladder may be avoided. Dr. Keegan speaks at some length on the choice of instruments. Clogging of the blades of a lithotrite with *débris* is a very dangerous complication in performing litholapaxy in male children, because it has the effect of increasing the size of the lithotrite, say from a No. 7 to a No. 8, and in boys there is not much spare room, and the effect of increasing the size would be to injure the urethra on withdrawing the instrument. The evacuating catheter should be furnished with an accurately fitting stylet, in order that any fragment fixed in the eye may be displaced before the catheter is withdrawn. The meatus should be incised, and no force used in passing either the lithotrite or the evacuating catheter. The stone should be very thoroughly crushed, as the small size of the evacuating catheter will only allow the removal of small fragments Every particle of stone should be removed at one sitting. The first crushing should be thorough as possible, so as not to necessitate frequent passage of the lithotrite and evacuator. A small aspirator should be employed, to avoid any risk of over-distension or rupture of the bladder.

If the above precautions are taken, Mr. Walsham believes—and the other authors quoted agree with him, that litholapaxy (provided always that a No. 5 or 6 lithotrite passed readily into the bladder) after incision of the meatus will be found as simple and as safe an operation in children as it is in adults; and he thinks that, for all small and moderate-sized stones, it will be the operation of the future in boys and children, as it is in adults; and that the supra-pubic operation will be reserved for the removal of large and hard stones only.

Median Cystotomy.—Mr. Reginald Harrison* says he thinks that it will be generally admitted that the easiest and simplest method of entering the bladder, say for the purpose of exploring it with the finger, is that known as median perineal urethrotomy, or, incorrectly, as median cystomy. By this plan, the finger may be readily passed into the bladder. Nothing of any size can be drawn out of such a limited opening, but it can be readily adapted to the removal of larger stones, say up to six-ounce urate or oxalate ones. During the course of a number of operations for the relief of a large prostate, Mr. Harrison found it easy to obtain as free an opening into the bladder by a median incision along the urethra and floor of the prostate as by the ordinary lateral operation for stone. To effect this, the finger having been passed into the bladder by the side of the staff, the opening is extended in the following manner: In the first place, the membranous urethra is slit up along its floor, on the staff with a curved, probed-pointed bistoury. In this incision may be included more or less of the perineum, according to circumstances. Any bleeding vessel may be tied before proceeding further. The deep incision is then made by passing the curved, probe-pointed bistoury well into the bladder by the side of the index finger. The staff may be now withdrawn. Next, the blade of the knife is turned downwards towards the rectum, and the floor of the prostate is divided from within outwards, commencing at the depression which exists just within the

* *Lancet*, June 18, 1887, p. 1224.

orifice of the urethra in most male adults. This incision may be deepened down to the capsule merely by firm pressure downward with the index finger. In this way, Mr. Harrison has been able to make as free an opening into the bladder, nearly along the median line of the body, as a lateral lithotomy will permit.

Mr. Harrison sums up the advantages of the method described: "With such an incision, as much room is gained as by the lateral incision; the liability to hemorrhage is less, while the facility for getting at any bleeding point is increased. The movements of the knife in one hand are, from the beginning to the end of the operation, under the direction and control of the index finger of the opposite hand. It adapts the median procedure to a wider range of cases than the old median operation. A state of temporary incontinence of urine and thorough drainage is provided for."

Mr. Harrison has no wish to see the median operation supplant the lateral, but desires that it shall be made an "efficient alternative."

Pre-prostatic Puncture of the Urethra.—Under the name of pre-prostatic puncture, Makins refers to the operation usually known by the name of Cock's, and tabulates the operations of this kind done at St. Thomas's Hospital* during the last ten years. The operation has been done during that period forty-six times. In twenty (43.4 per cent. of the whole), it was resorted to for the relief of acute retention of urine, the passage of a catheter having proved impracticable. Of these, four died: two from exhaustion and uræmia, one from pyæmia, and one from an unascertained cause. None of these cases could be said to have died directly from the operation.

In twelve cases (26 per cent.), the indication was chronic obstruction, in which either no instrument, or only a very small one, could be introduced; in the latter cases it being considered that the time gained in ability to commence local treatment of the bladder justified the procedure. Of these cases four died: one of bronchitis and pulmonary congestion, and three of gradual uræmic poisoning.

In the third series of cases, fourteen in number (30.4 per cent.), the operation was performed for retention of urine, complicated by extravasation. Here, as would be expected, the lowest percentage of cures was obtained, death resulting in spite of the operation.

In one instance, not included in the above numbers, the operation was successfully performed in a case where a large hæmatoma of the scrotum was complicated by a false passage made by the patient in an attempt to pass a catheter upon himself.

With regard to the difficulties of the operation, that of finding the urethra is shown by the statistics to be unworthy of the importance which has been assigned to it by objectors to the practice. On reference to the table, we find that, in four instances the operator was unable to convince himself at the time of operation that the urethra was opened, so that the final stage, that of introducing a perineal catheter, could not be proceeded with. In two of these cases, the patient's bladder was aspirated over the pubes, and in two the bladder was punctured per rectum; but in three out of the four these measures proved to have been unnecessary, for urine flowed freely by the wound after the operation,

* St. Thomas's Hospital Reports, Vol. xv., p. 107.

showing that the real difficulty had been in passing the perineal catheter. This was no doubt due, in part, to displacement of the urethra from its normal position, and in part, perhaps, to the smallness of the opening made in consequence.

*Inflammation of the Pre-vesical Space, or Space of Retzius.**—Dr. O. Pinner (Frankfort on the Main). After comparing the anatomical descriptions of the tissue-spaces in front of the bladder given by different authors, Dr. Pinner gives his own methods of studying them. He made an incision in the middle line, above the symphysis, inserted a drainage-tube, and injected soft plaster-of-Paris under considerable pressure. The submuscular space proved difficult of demonstration, owing to the readiness with which the injected matter found its way into the pre-vesical space. The author is of opinion that these two spaces should be differentiated clinically, as well as anatomically. The muscular space is bounded, anteriorly, by the posterior aspect of the rectus muscles; centrally, by the linea alba; laterally, by the external margin of the sheath of the rectus; below, by the symphysis; and posteriorly, by the transverse fascia of Cooper. The two submuscular spaces are but incompletely separated from each other.

The pre-vesical space is bounded, anteriorly, by the os pubis; above, by the transverse fascia; posteriorly, by the facia propria and the bladder; below, by the pelvic fascia. This latter space only should be designated as the space of Retzius.

Phlegmons of the pre-vesical space are frequently due to the extension of inflammatory process of the bladder, the rectum, the prostate, the iliac fascia or the pubic bone. Phlegmons of the pre-vesical space resemble the well-filled bladder. The apex points upwards. Palpation proves the tumor to originate from the pelvis. The recti can be brought into prominence above the tumor. The tumor can be felt by rectal examination. Bladder symptoms are often present.

If no incision is made, a submuscular abscess generally perforates the skin, but it may perforate into the abdomen. A pre-vesical abscess may perforate through the skin into the abdominal cavity, or into the rectum, the bladder, the vagina, the urethra, or through the incisura ischiadica, into the scrotum, or along the thigh.

The Treatment of the Sac in Strangulated Hernia.

John Poland, F. R. C. S., demonstrator of anatomy at Guy's Hospital, in an article in the *Practitioner*, November 1887, upon the treatment of the sac in strangulated hernia, says that consideration of the relative value of the various modes of procedure in dealing with the sac in operations for *strangulated* hernia is of the greatest practical importance at the present time. He does not propose any new method of operation, but merely deals with several courses which have now been fairly extensively practiced, and which should lead to the establishment of rules for guidance in these cases. These improved methods have been formed principally on the experience recently gained in surgical interference with the peritoneum. While Surgical Registrar at Guy's Hospital, opportunities were afforded the author of witnessing a considerable number of these operations and their results. The conclusions drawn from them undoubtedly all

* Deutsch Zeitschr. f. Chir., vol. xxiii. hft. 506. Annals of Surgery May, 1887, p. 434.

tended towards the same point. Secondly, these different modes of dealing with the sac will be treated in detail—with their several advantages and disadvantages, and the data each affords for adopting certain rules.

From the experience of late years in dealing with the abdominal cavity, the importance that was formerly attached to leaving the sac alone no longer holds good, but on the contrary, it is even unadvisable; and this can be stated as true even in the most simple cases, where the intestine has been reduced after external division of the structure. The most dangerous element in strangulated hernia is now universally recognized to be the condition of the intestine or other contents of the sac. One will thus readily understand why the sac should in all cases without exception be opened. Of course, the customary rule is to open it in cases of long-standing strangulation and where omentum is present. It necessarily follows from this, and is a practical point of very great moment, that *only the slightest taxis is permissible* in attempts at reduction of the bowel before operation. There are no dangers now arising from wounds of the peritoneum to counterbalance such as might occur in prolonged or violent taxis, bruising of the bowel, extravasation from ulceration, etc. And there is this further reason, surgeons now make some slight addition to the usual operation of herniotomy, tending to a radical cure—an addition in many cases that adds in no way to the risk of the operation. These new conditions, especially the latter, will, as pointed out by Sir William MacCormac in his opening address on Surgery before the British Medical Association at Belfast, 1884, induce surgeons to interfere surgically in cases where the symptoms of strangulation or incarceration are very mild.

The author then gives the following *modes of dealing with the sac:*

1. Leaving it alone without fastening it up in any way.
2. Union of margins of sac with catgut, and skin united over it.
3. Torsion of sac.
4. Ligature of neck with excision of sac.
5. Ligature of neck of sac without excision.

1. Leaving the sac alone, whether it has been opened or not, is the course usually set forth in systematic works on Surgery. In Mr. Birkett's article on *Hernia* in the last edition of *Holmes' System of Surgery*, no mention is made of any other course. Sometimes the sac was plugged by the introduction of substances into it. The orifice of the hernial sac was often left to be plugged merely by a mass of omentum. This must in a very large number of cases have been but imperfectly accomplished. We now know, he says, from the experience of the ovariotomists, how important it is that the peritoneal cavity should be carefully and effectually closed by bringing the peritoneal surfaces into close contact. Why the peritoneum should be treated in a different manner in hernia it is difficult to understand. This reasoning alone should be sufficient to condemn the old course of treatment in uncomplicated cases.

2. Union of the margins of the sac by means of catgut sutures the skin being united over this, is certainly a step in the right direction, by closing the peritoneal cavity and preventing extension of suppuration from the wound into its interior. It is far inferior in many respects to the methods to be described, but is applicable in certain cases,—for instance, in old strangulated umbilical or

other hernias, where the sac is firmly adherent to the skin, in very large hernial sacs, and in cases in which the intestines are closely adherent to the sac.

3. Torsion of the sac was recommended in 1884 for the radical cure of hernia by Dr. C. B. Ball, of Dublin, at the meeting of the British Medical Association. He recommends the separation of the sac from the surrounding tissues; the sac to be then grasped with a clamp forceps high up and several half-turns given; a catgut ligature then to be applied tightly round the neck. The two special advantages which he claims for the operation are these: (1) a higher and thus more perfect closure of the peritoneum than can be obtained by ligature; (2) the twisting has the effect of tightening and throwing into ridges the peritoneum for a considerable area surrounding the abdominal opening. This he believes to be a matter of great importance, and one must remember, as Lawrence pointed out many years ago, that one of the most fertile predisposing causes of hernia is an abnormal laxity and fulness of the peritoneum in the neighborhood of the hernial opening. Dr. Ball has adopted torsion of the sac in only one case of strangulated hernia—a femoral. This method would be applicable in a few cases of long-standing hernia with wide orifices and where there is very great obesity; otherwise it does not appear to have any advantages in the cases now under consideration over the following method.

4. Ligature of the neck of the sac, as high up as possible, with excision of the sac. This was first advocated on the continent by Czerny, and is now extensively practised both there and in this country, but more especially by the Liverpool surgeons. Directly the strangulated bowel has been reduced—after division of the stricture—the empty sac is separated by the fingers and forceps from the surrounding tissues and a stout catgut ligature applied to the neck as high up as possible. The sac is then cut away by scissors below the ligature and removed, and the wound closed in the usual way. This separation of the sac from the surrounding tissues is accomplished with the greatest ease in all cases of recent origin and in cases of femoral hernia. The cellular tissue being but little disturbed, there is often no suppuration, and the wound unites by primary union. The peritoneum is completely closed by the ligature, bringing the surfaces into contact, besides causing a good deal of drawing together of the loose folds in the neighborhood. The site of the hernial orifice is thus sealed over in a few hours with lymph. In this manner no risk whatever is added to the operation.

The author then reports the following case, which exemplifies well this class of disease:—The writer saw, with Drs. Hearnden and Atkins, of Sutton, a woman aged thirty-five, with a femoral hernia on the right side. She had worn a truss for some years, but had left it off of late. The rupture had come down twenty-eight hours before, and symptoms of strangulation had existed from that time. Taxis having been applied some hours previously, we decided to operate after taxis had been again gently applied for a few seconds. The sac was opened in the usual manner and the stricture divided. A small knuckle of intestine of a purple color and coated with lymph was returned into the abdomen; the sac then stripped from the surrounding tissues, its neck ligatured with catgut, and cut away with scissors below the ligature. The carbolic spray was not used, but every precaution for cleanliness was taken, and the wound dressed with iodoform

lint, a drainage tube being inserted into the lower end of the wound. The wound was dressed twice only, on the second and again on the fifth day, primary union taking place throughout almost the whole of the wound. The temperature rose to 100.2° on the evening of the operation; this was the highest temperature recorded. The patient recovered without any bad symptoms whatever.

In other hernias of older date, the separation cannot be effected without considerable difficulty, and might lead, if not carefully performed, to extensive sloughing and suppuration of the cellular tissue. This operation is therefore unadvisable for hernia of large size or for those of long standing. The author has seen profuse suppuration of the wound take place after excision of one of these old sacs, and also in some other cases, yet in none of them was there the slightest indication of septic peritonitis. The peritoneum is shut off from the wound in the space of a few hours, and this soon renders it impossible for suppuration, however extensive, to pass into the abdominal cavity. This closure of the neck of the sac has another great advantage; it effectually prevents all hæmorrhage from the wound into the peritoneal cavity, and its possible septic influence on this cavity.

The more remote benefits from this mode of dealing with the sac are as follows: (1) It holds out a great hope of permanent cure, not only in restoring the patient to a more normal condition, not only by removing a more or less perfect track along which a portion of intestine might again descend, this track being in fact composed of morbid and useless tissues, but also in producing a radiating puckering of the peritoneum round the hernial orifice and closing the orifice itself by dense cicatrical tissue, and thereby tending to prevent yielding again at this spot. (2) The operation does away with an indurated thickened mass which often exists where the sac has been allowed to remain untouched, and hence allows the more perfect fitting of a truss subsequently, and increased comfort to the patient. In cases where the opening is large, the pillars of the ring may be brought together by sutures without adding to the risk of the operation. This mode of treatment, it is scarcely necessary to say, is prohibited in cases of gangrene, ulceration and extravasation of fæces, dense adhesion of intestines to sac, etc.

5. Ligature of sac without excision, or, as recommended by Sir Wm. MacCormac, with partial excision—that is, removal of a ringlike process of the serous membrane from the neck. This may be performed in large inguinal hernias and in the congenital form—the latter only in younger life. In adults the sac is too intimately connected with the cord to permit of even this partial removal. It is questionable whether this operation, more especially Sir Wm. MacCormac's method, is justifiable in these cases without the strict use of Lister's antiseptic precautions. As regards other cases besides these mentioned, ligature without excision has no advantages over ligature with excision.

In conclusion he sums up briefly the advantages gained by *ligature of neck with excision of sac* in certain cases of strangulated hernia indicated above, as follows: 1. *Immediate:* (1) In many cases it does not add in any way to the risk of operation; (2) it shuts off the peritoneal cavity in a few hours; (3) it prevents hæmorrhage into abdomen; (4) it prevents septic peritonitis. 2. *More remote:* (5) it promotes tendency to radical cure; (6) it leads to more perfect adjustment of truss and comfort of patient.

The author says he has before him a specimen of healed femoral hernia with the operation wound also healed, taken from a patient aged seventy-one, on whom Mr. Clement Lucas performed herniotomy with excision of the sac for strangulation. The patient died on the seventh day after operation from acute pleurisy and capillary bronchitis. The specimen illustrates very beautifully the result of the method of treatment by excision of sac with ligature of neck in a *recent* hernia. Closure of the peritoneal aspect of the hernial aperture is seen to be perfect, no trace of a depression being visible here; it is quite smooth, with a slightly radiated appearance. There is primary union of the surface wound.

The Operative Treatment of Intestinal Obstruction.

This paper, by Dr. RYDYGIER, (in the *Archiv für klinische Chirurgie*, vol. xxxvi, 1st part), consists of the narration of seven cases of intestinal obstruction, upon each of which the author had performed laparatomy. The first case was one of obstruction, due to a loop of intestine being strangulated by a pseudo-ligament. The band was divided between two ligatures, and the loop of intestine drawn out. The patient made a good recovery. The second case was one of ileo-cœcal invagination. The operation was performed 4 days after the onset of the symptoms. The bowel was disinvaginated, but the patient succumbed a few hours after the operation. The third case was one of volvulus of the sigmoid flexure. The operation was performed on the fifth day, and the bowel untwisted. For the first two days progress was favorable, but afterwards head symptoms set in and the patient died apparently of tubercular meningitis five days after the operation. The fourth case was one of strangulation of a loop of small intestine through a sort of membrane which extended across the brim of the pelvis. The parts were not disengaged at the operation, and the patient died a few hours after. The fifth case was obstruction due to a perforation of the cæcal appendix and formation of a fæcal abscess. A piece of intestine had become glued down and constricted. The operation was performed on the fifth day. The abscess cavity was opened and the bowel liberated. The patient made a good recovery. The sixth case occurred in a new-born child. At the operation, a considerable portion of small intestine was found coiled up and glued together in such a way that there was complete interruption to the lumen of the canal. Twenty-five centimetres were resected. Death occurred a few hours after operation. The seventh case was one of obstruction due to pressure of a carcinomatous tumor upon the sigmoid flexure. The surrounding parts were found too much affected at the operation to attempt resection, so that an artificial anus was made at the lower end of the wound. The patient died the day after the operation.

In commenting upon the subject, the author depreciates delay in the treatment of all cases of obstruction when the symptoms point definitely to a sudden onset. Palliative measures, such as the stomach-pump, he regards as useless, and believes that so soon as both the public and profession can be induced to believe in the comparative freedom from danger of the operation of laparatomy, cases will be early treated and better results will be obtained.—*Glasgow Med. Journal.* Dec., 1887.

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A SYNOPSIS

OF

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I. ANATOMY, PHYSIOLOGY AND PATHOLOGY.

Formation of Bone in the Mucous Membrane of the Trachea.

Dr. Dennig, assistant to the polyclinic at Tübingen, has increased the scanty literature upon the subject of the formation of osteoma in the mucous membrane of the trachea, which has consisted of three cases, by two new observations. As in the other cases, so in these two, tuberculosis was present. One of the patients was a man, and the other a woman 31 years old. The bony plates lay free in the submucosa, without any connection with the cartilage, and exhibited true bone, which originated through calcification of preexisting connective tissue. *Beitrage zur pathol. Anat. u. Physiol.*, by Ziegler and Nauwerck II. 1, p. 101, 1887.

Alkalinity of the Blood in Disease.

Prof. Rudolph von Jaksch (*Zeitschrift für klin. Med.* XIII. 3 u. 4, p. 350, 1887) has tested the alkalinity of the blood in 88 different cases of disease, and found that it appeared essentially altered in numerous conditions. An acid reaction of fresh blood could never be detected. The alkalinity was diminished: 1, in different febrile diseases—a point which has been already proved with regard to animals, and is perhaps, to be explained by the fact that "the formation of larger quantities of organic acids in the organism leads to an impoverishment of the blood in its basic salts;" 2, in uraemia; 3, in diseases of the liver, if these lead to an extensive destruction of liver tissue. Von Jaksch has previously proved that in this case a greater quantity of fatty acids frequently occur in the urine. 4, in leukemia, pernicious anemia and chlorosis; 5, in carbonous oxide poisoning.

Microscopical Sections of Rodent Ulcer.

At a meeting of the Pathological and Clinical Society of Edinburgh, March 28, 1887, Mr. A. Ernest Maylard presented microscopical sections of rodent ulcer, and said: The ulcer from which the sections were cut was a very typical one of its kind. It was situated at the lower part of the ear, having eaten out a concave piece from the lobule of the pinna and removed a small area from the cheek. The sections were cut in a progressive series—the first through the adjacent skin, the last well into the floor of the ulcer. Between these extremes the various stages of tumor growth are seen. That immediately external to the ulcer shows considerable proliferation of the epithelial cells, and that representing the edge of the ulcer, a small collection of cells, situated in a space quite distinct from, though definitely located in, the *rete mucosum*. Besides the excessive proliferation of normal epithelium, a large number of small exudation cells are seen in the immediate vicinity of the new growth, quite distinct, however, from the latter. As the floor of the ulcer is approached, this small collection of cells

become gradually larger, nearing the surface and causing a corresponding disappearance of the surface epithelium, until finally the tumor tissue proper forms the surface or floor of the ulcer, covered by a layer of blood-stained exudation. The cells, which form the tumor, are much more deeply stained (alum-carmine) than the surrounding epithelial cells. They form variously shaped collections, but in many places these are so arranged as to form cylinder or columnar shaped masses, with intervening fibrous and cellular tissue. The nuclei are large and very granular; only at places does the protoplasmic surrounding become visible. It is also noticed that some of the collections have a distinct internal layer of "palisade cells," with also a limiting membrane. The minute structure of the ulcer will thus be seen to resemble in every feature the drawings and description given by Dr. Thin in his recent work on the subject.*

The sections cannot be said to throw any positive light on the still questioned seat of origin. But the fact of the tumor spreading superficially through the cells of the *rete* would seem to suggest that it probably arose from a structure in this neighborhood—if not from the *rete* itself, very possibly from that extension of it which goes to form the external root sheath of the hair follicle or the sebaceous glands.

In support of the theory, however, that rodent ulcers arise from the glands, either sebaceous or sudoriferous, the definite lining of palisade cells with a membrana propria, seen in some of the sections, would seem to lend some weight. It must always remain a very difficult point to decide whence the growth arises. For, once having arisen, the primary seat is soon destroyed, and all that can then be observed is the mode of extension. It is a strange fact that, if the *rete mucosum* be the part from which the tumor arises, the cells do not show, in places, a tendency to form epidermic epithelium.

But there is nowhere the slightest evidence of formation of squamous cells, prickle cells, or "nests;" and in this, rodent ulcer shows a marked contrast to squamous-celled carcinoma (epithelioma). Again, the extremely slow growth of this ulcer would seem to render the formation of fully developed cells the more likely; so that one would have expected in rodent ulcer more than in squamous-celled carcinoma, to find the cells becoming squamous if the *rete* be the source of the tumor. For these reasons, therefore, and the others above stated, I am inclined more to the view of the ulcer being of glandular origin, and arising rather from the sebaceous than the sudoriferous glands. My reason for preferring these glands rests on their anatomical position. Being situated in the corium, and so nearer the surface than the secreting part of the sweat glands, which are in the subcutaneous tissue, they would more nearly correspond to the advancing portion of the tumor growth which, as shown in the sections, is either in or immediately beneath, the *rete mucosum*.

In many of the sections there exist large numbers of small cells, and these being mapped out so distinctly from the larger cells forming the tumor, it seems probable that they are merely irritative in origin, and have no specific relation to the tumor tissue proper. They resemble exactly those so frequently seen in the neighborhood of advancing carcinoma.

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* *Cancerous Affections of the Skin.* George Thin.

It is interesting to note the great amount of proliferation of epidermic cells in the immediate neighborhood of the tumor, and although these must be young cells, like the advancing tumor cells, they are not nearly so deeply stained by alum-carmine as the latter. They must be simply an irritative overgrowth, caused by the advancing tumor tissue.—*Glasgow Med. Journal*, October, 1887.

Note on an Anomalous Arrangement of the Large Veins of the Neck.

Dr. J. G. Pinkham, Lynn, Mass., in the *Boston Medical and Surgical Journal*, February 2, 1888, says, that in making an examination of the body of a young colored woman who was killed in Lynn, by a razor wound of the neck, an anomalous arrangement of the large veins was discovered. The cut began one inch in front of the angle of the jaw on the left side, and extended obliquely downwards and forwards a distance of two inches, to the top of the thyroid cartilage, thence parallel to the lower jaw on the right side, a distance of two-and-a-half inches. The structures divided were the skin, the subcutaneous cervical muscle, the superficial layer of the cervical fascia, and the sterno-hyoid muscles. The thyro-hyoid muscle of the right side and the thyroid cartilage were cut into. At the bottom of the wound on the right side, and far out, was seen a large vein partially severed and still bleeding. From its position, this was at first supposed to be the external jugular vein; but when followed upwards with a probe it was found to divide into two main branches, one of which passed upwards and inwards to the region of the jugular foramen, and the other upwards and outwards to the front of the ear. Below, the main vein was found to dip beneath the sterno-cleido-mastoid muscle, and to join the subclavian, forming with it the innominate of that side. Further dissection revealed the carotid in its sheath with the pneumogastric nerve, in their usual positions, but with no vein accompanying them. It was therefore concluded that the internal jugular vein, in descending from its point of origin, had abandoned its place by the side of the internal carotid, and turning outwards towards the surface, had joined the external jugular to form a common jugular, which from this point pursued a course downwards midway between the course of the external and that of the internal jugular, until it joined the subclavian. This common jugular, although loosely invested with fibres from the cervical fascia, was entirely outside and above the sheath of the carotid. In order to make sure of his conclusions, he followed the bloodvessels upwards from the *vena cava descendens*, and laying them open verified every point. The arrangement on the left side was found to be the same as on the right, except that the vessel was smaller. As the cut was higher in the neck at this point it struck the vein in its most superficial position, and completely severed it. Had it not been for this unusual arrangement of the large veins, it is possible that the cut, severing as it would have done only the external jugulars, might not have caused death, or at any rate might have proved less speedily fatal. As it was, death occurred from hemorrhage in about twenty minutes, as nearly as could be ascertained, after the infliction of the wound.

Case of Cerebral Tumor.

Dr. J. C. Shaw reported a case of brain tumor, at a meeting of the New York Neurological Society, December 3, 1887. The patient was a man, forty-one years old, a jeweler by trade, temperate, and previous history good; no syphilis.

In 1879 the patient had an attack of rigidity in the night, followed by a deep sleep. March 19, 1882, he had an epileptic attack, the convulsion commencing in the left side of the face and extending to the neck, so that the head was twisted to the left side, and the eyes were turned upward. Thus far the patient was conscious, and had raised the left arm to strike upon his bench to attract help, when his arm was seized with the spasm, and he knew nothing further. The attack was followed by sleep. He had had as many as four such seizures in a week. In one attack observed by the speaker, the left side of the face and the left arm had been principally effected. There had been no loss of consciousness in this attack.

The convulsions were preceded by a peculiar, painful sensation in the roof of the mouth and teeth. There was more or less numbness of the left side, the tactile sensibility of which was diminished. Two points were recognized upon the left hand only when $1\frac{1}{2}$ inches distant, while upon the right hand two points were recognized when $\frac{1}{3}$ inch distant.

January, 1886, headache commenced to be complained of, also nausea. Choked disk was now found. August, 1886, vision was almost lost; headache and nausea continued and mental cloudiness was apparent. February 4, 1887, the patient would fall to the right side, there was paresis of the left arm and leg, and the patient could not tell when lightly touched. He was now weak, thin, and confined to bed. March, 1887, urine and feces were passed involuntarily. In May, a bed sore appeared. June 21, the patient suddenly became comatose, with puffing respiration, chiefly abdominal. After thirty-six hours he recovered from this, but July 1, died of exhaustion, extremely emaciated. The skull was found very thin, the veins of the meninges prominent. On lifting the brain the posterior fossa was found to contain fluid, the origin of which did not appear. The left hemisphere showed no gross lesion. In the right hemisphere the dura was adherent throughout a localized patch, dark brown in color, and occupying the lower part of the motor zone, beneath which softening appeared. The basal ganglia were free. The pain in the teeth, complained of at the commencement of the spasm, had suggested a reflex from the dura to the fifth nerve. The reader considered it not illogical to conclude that the numbness, too, was to be explained by the irradiation of this reflex to other portions of the sensory tract. The apoplectiform seizure was probably due to hemorrhage into the softened mass. The opinion of the members was requested upon this point.

Dr. Dana inquired in regard to the character of the growth.

Dr. Shaw replied that section had not yet been made, but he considered the growth a glioma.

Dr. Dana found the growth occupying only the lower part of the paracentral convolution and not involving the parietal lobe.

Dr. Seguin remarked that as the pia was *in situ*, exact location was difficult; but that, according to his judgment, the lower part of the paracentral and the posterior extremity of the second frontal and of the third frontal convolutions were involved. The fact that Dr. Shaw had observed no laryngeal symptoms was interesting.

Dr. Birdsall, referring to the sensory symptoms, remarked that the tumor was not simply a cortical lesion; it extended inward, and more central tracts had probably been involved.

Dr. Starr added that sensory symptoms accompanied motor impairment where the parietal lobe was invaded. As a rule, where cortical motor lesions were without sensory disturbance the location of such lesions was anterior to the fissure of Rolando. Where sensory disturbances were also found, it was posterior to that fissure. In this case, however, it was not impossible that congestion posterior to the fissure would explain the symptoms.

Dr. Seguin remarked that the subject of sensory disturbance, in connection with cerebral tumors, was most interesting and important. In his own experience a slight diminution of sensibility had accompanied lesions of the motor-centres, even when confined to the cortex. Nothnagel, at the Congress for Internal Medicine, in Germany, had referred to slight tactile anæsthesia in a large number of cases of tumor or lesion of the motor-cortical centres. These were, however, without loss of the muscular sense. It was conceded that the muscular sense was located in the parietal lobe. In a case of Dr. Weir's, with sarcoma involving the fasciculus for the face and hand, there was distinct anæsthesia of the face and hand, but no loss of the muscle-sense, as tested by passive motion and weights.—*Medical Record*, January 28, 1888.

An Experimental Inquiry upon Death under Chloroform.

With a view of determining the morbid changes produced in the system by long continued chloroform inhalation, Dr. E. Ungar, a *privat-docent* in the University of Bonn, subjected numerous rabbits and dogs to the action of chloroform vapor for hours, with interruptions however. The story of Dr. Ungar's investigations and the results obtained are recorded in the *Vierteljähresschrift für gerichtl. Med.* 47 Bd. 1 H. He found a more or less pronounced, but in every case striking change in important organs. The muscular tissue of the heart, according to his investigations, appears to undergo fatty degeneration in a high degree, whilst the endocardium shows numerous degenerated spots. The same change was noted in the larynx, trachea, bronchi, and alveolar walls of the lungs. The spleen also, and the mucous membrane of the stomach and intestines show the same changes. In the kidney also, similar changes are observed; the tubuli contorti were filled with small drops of fat, and much degenerated. The cells of the liver were distended with both large and small drops of fat, and in individual places appeared to be nothing more than mere fatty detritus. The epithelium of the smaller bile ducts, moreover, showed advanced fatty degeneration and destruction. Portions of muscular tissue taken from the diaphragm, showed the degeneration in a marked degree, as well as, but to a lesser degree, the long abdominal muscles and the quadriceps femoris. These changes wholly or in part, were observed more or less marked, according to the length of time over which the chloroform inhalation had been extended. These investigations showed that chloroform introduced into the system by way of inhalation can set up destructive changes in vital organs, and it is important to observe that the morbid change so induced is the identical one—fatty degeneration of the heart—that renders chloroform notoriously deadly to the subjects of it. It is true that in the experiments described, chloroform narcosis was kept up for a longer period than is ever required in a surgical operation, but, it should also be borne in mind, as a set off to this, that the animals experimented on were previously sound and strong, and

not debilitated by disease, and also that operations are frequently repeated on the same patient—that many women, for instance, have chloroform administered for hours together during labor, and that every hour during which it is administered adds materially to the danger of subsequent inhalations, and that therefore, if it has been administered to a given patient five or six times successfully, this fact, instead of being considered proof that he or she can take it with impunity, ought rather to suggest to the mind of the surgeon that the previous administrations may have already set up destructive changes in the muscular tissue of the heart which will render an additional narcosis unusually hazardous. If this tendency of the drug be added to the tendency of previous disease on the part of the patient, the danger will become still more obvious. Great or repeated losses of blood, long continued pyrexia from inflammations and suppurations, long continued dyspnœa, cachexia, alcoholism—all more or less favor the occurrence of fatty degeneration. It is further to be borne in mind that during or after chloroform administration, conditions may arise that favor the development of fatty degeneration, loss of blood, fever from wounds, etc. Under such circumstances, when the predisposition thereto is already high, it may well be conceived that chloroform inhalation, even for a short period, may set up permanent destructive changes in vital organs, which will constitute a never ceasing danger to life, changes, such as, in the case of healthy individuals, would have required a much longer persistence in the anæsthetic to set up. It is scarcely necessary to point out, that in the case of a patient already suffering from fatty degeneration of the heart, who is subjected to chloroform inhalation, the disease will be rendered worse, and continued existence will be still more precarious, even if he should at the time escape with his life. It is also scarcely necessary to point out that the pernicious habit of inhalation of chloroform, which some people of ill-regulated minds permit themselves to become addicted to, is extremely likely to lead, sooner or later, to fatal results. Examples of this have unfortunately been of such frequent occurrence that the point need not be pursued further at present. Dr. Ungar attributes the injurious action of chloroform to its directly poisonous effect on the tissues, possibly to the chlorine that is given off. He does not consider the view that it is an expression of deranged nutrition, from dissolution of the red corpuscles, to be tenable. The belief that chloroform may prove fatal, days even after its administration, receives strong support from the experiments. No less than five of the animals experimented on, although previously healthy, died more than 24 hours after "coming out" of the chloroform, showing that even after the return of consciousness the patient is not out of danger. It is not therefore a case of "out of" the chloroform, out of danger. Dr. Ungar considers this delayed danger of chloroform to be very real, and declares that even days after, without the patient showing in the meantime the slightest evidence of any injurious effects from it, and without a sign of threatening danger, when to all appearance he may be quite well—he may suddenly expire. A quick change of position, startling excitement, may be the immediate cause of a sudden call being made on the heart to which it can no longer respond, and paralysis of that organ takes place. It is not at all improbable that this delayed danger may explain many of the cases of sudden death that takes place hours and days after operations under chloroform, and for which no satisfactory cause has hitherto been assigned.—*Medical Press and Circular*, Jan. 25, 1888.

The Changes of the Spinal Cord after Temporary Occlusion of the Abdominal Aorta.

At the last meeting of the "Verein deutscher Aerzte in Prag." Docens DR. SINGER read a paper on this obscure subject. He had imitated the experiments of Ehrlich and Brieger on the changes of the spinal cord after one hour's occlusion of the abdominal aorta (Stenson's experiment), for testing the results which had been obtained by those authors. The results at which Dr. Singer has arrived are the following: Twenty-four hours after compression of the abdominal aorta, granular degeneration of the multipolar ganglion cells occurred, but no other change in the white and grey matter could be proved. After the lapse of eight days, the cells of the anterior horns, "cornua anteriora", as well as the plexus of the fibres of the anterior horns, had disappeared, and the secondary degeneration as above mentioned, became more distinct. The "funiculi posteriores," the spinal ganglia, and the posterior roots, remained normal. After four weeks, there supervened shrinking of the whole transverse section of the grey matter, total degeneration of the anterior roots, and secondary degeneration of the whole transverse section of the "funiculi anteriores," except a narrow zone on the interior surface of these funiculi, and the posterior periphery of the lateral funiculi. Both these zones, however, were not to be identified with those regions which had been described by Ehrlich and Brieger. The complete disappearance of the anterior roots and the fibrillar plexus of the "cornua anteriora" made it possible to prosecute the course of the posterior roots in the grey matter with especial facility.—*Vienna Correspondence Medical Press and Circular*, Jan. 25, 1888.

The Osteogenetic Factors in the Development and Repair of Bone.

In the *Annals of Surgery*, October and November, 1887, DR. WILLAM MACEWEN, Surgeon and Lecturer on Surgery in the Glasgow Royal Infirmary, has a long article upon this subject. He lays down his opinions in the following propositions:

A. When the periosteum has been mechanically detached from an extensive area of an adult healthy bone and replaced after the lapse of some hours, union between the bone and the periosteum can take place without sloughing or observable augmentation ensuing.

B. The periosteum may be separated from the bone for a period of days by inflammatory products, after the withdrawal of which, reunion between the periosteum and the bone may take place without necrosis ensuing; showing that the temporary separation of the periosteum from the bone, even as a pathological result, is not necessarily attended by death of bone.

C. The periosteum covering a portion of bone may be completely destroyed or permanently removed, yet the denuded bone may not only retain its vitality, but may throw out cells which will cover it and form a new periosteum.

D. A portion of bone which has its continuity severed on all sides, and at the same time has had all its periosteum removed, is capable of living and growing.

E. Not only do detached portions of bone deprived of their periosteum live when reimplanted in their original position, but such portions are capable of living after transplantation. Parts of deeper layers of bone which had no periosteal connection have been transplanted and have lived and grown.

F. The periosteum does not initiate the reproduction of bone.

G. Bone may be regenerated independently of the medulla, which may itself be reproduced.

H. The histo-genetic phenomena support the foregoing observations, showing that the periosteum does not generate the bone.

Thermo-Electric Measurements of Inflammatory Foci.

MAXIMOW (*Wien. med. Jahrb.*, 1887, p. 583,) has accurately studied the thermo-electric measurements of inflamed areas, and confirms the results of Landieu and Jackson. The latter, in opposition to the earlier observations of Weber, found that the temperature of inflamed skin or muscle never reaches that of the general circulation. He found, both in men and in animals, that the temperature of inflamed parts was usually lower than that in the axilla, and this was true even when the actively inflamed walls, and not the cavities of abscesses were examined. In these observations numerous difficulties became apparent, especially in taking the temperature of internal organs; so that Maximow is sceptical in regard to the value of such researches. The physiological variations of the liver temperature, for example, are very notable; while in disease, actually less heat is produced in it than in health.

Maximow takes occasion to refute the common idea that the axillary temperature is more liable to variation than the rectal; for the rectum, possibly on account of its glandular activity, is much more disposed to changes than the properly dried and closed axilla.—*Schmidt's Jahrb.*, No. 215, 1887.

Cerebral Localization and Cerebral Disturbances of Sight.

DR. C. REINHARD, of Friedricksberg, has articles upon this subject in the *Arch. für Psychiatrie*, Bd. XVII and XVIII, 1886–87. His comprehensive work is based upon sixteen cases, which have been carefully observed. Two of these cases had paralysis; three, secondary dementia; four, senile dementia; seven, dementia from apoplexy. The *résumé* of the author is as follows:

1. Lesions of the coverings of the brain occasion greater disturbances of motility the nearer they are to the immediate neighborhood of the fissure of Rolando.

2. The disturbances of sensibility occasioned by lesions of the coverings of the brain occur with especial distinctness if the lesion implicates the parietal lobules.

3. Aphasic disturbances, whether of a motor or sensory nature, occur upon the right side only from lesions of the left hemisphere; motor aphasia chiefly from lesions at the foot of the left second or fifth frontal convolution, and at the left island of Reil; sensory disturbances occur usually from lesions of the first or second temporal convolution.

4. Lesions of the cerebellum occasion direct disturbances of sight, partly of the nature of mental, and partly of the nature of cortical blindness. Destructive lesions of the parietal lobules may also call forth, indirectly and transiently, cerebral disturbances of sight.

5. Impairment of the consciousness of color and space perception, is, in a certain respect, to be regarded as mental blindness, although loss or impairment

of remembrance of optical images partakes also of the nature of mental blindness. If the sensation for light is lost, then we have to do with cortical blindness.

6. Cerebral disturbances of sight may be unilateral or bilateral, complete or incomplete, but always occur homologously.

7. By partial mental blindness, is to be understood a condition in which conscious perception of separate color and space impressions still exists, and only a slight part of the ability to remember optical images has been lost. As opposed to this, a bilateral, absolute, but incomplete, deficiency in the field of vision may be regarded as partial cortical blindness.

8. Mental and cortical blindness both arise preferably, when the seat of the lesion is upon the convexity of the cerebellum.

9. Deficiencies in the field of vision only go through the fixation point, when, in addition to other cortical parts, a corresponding place somewhere in the neighborhood of the second occipital convolution, has been destroyed.

10. This place corresponds to the macula lutea of the retina, and represents the projection of those optic fibres which bring about distinct vision.

11. The cortical distribution of the optic nerve is to be considered in this way: Every point of it stands in relation with a corresponding point of the corresponding homologous half of the retina. The separation of the cortex of each occipital lobe into two fields is not to be maintained in the case of man.

12. Wildbrand's hypothesis, that the elements which perceive light, color and space are placed one above the other in layers in the cortex, not only best fulfils the theoretical requirements, but also actually comes nearer to explaining certain peculiarities of cerebral disturbances of sight.

13 Goltz's objection to the existence of cerebral disturbances of sight does not affect man.—*Deutsche Medizinal—Zeitung*, October 17, 1887.

Progress in Pathology.

The *Lancet*, Dec. 31, 1887, in its report upon the progress of Pathology during the year 1887, says: Year by year it is becoming more apparent that the aims of pathological research are changing. The spirit of inquiry is penetrating beyond the detection and description of the characters of morbid lesions and the explanation of tissue changes. It is concerned now largely with etiological considerations—a long step further back than mere morbid anatomy or physiology. Hence arises the important position which is being rapidly assumed by bacteriology, and the interest attaching to its pursuit. Amongst the evidences of the widespread activity in this department may be taken the success which has attended the publication of a *Centralblatt für Bacteriologie und Parasitenkunde*, which commenced with the opening year, and appears every week full of matter referring to bacteriological research. There should be mentioned also the issue of the first part of Professor KLEBS's "General Pathology," which is devoted to the exposition of these etiological considerations, and the appearance of new editions of CORNIL and BABES's classical treatise, "Les Bacteries," of Professor CROOKSHANK's "Manual of Bacteriology," and similar works by HUEPPE, FRAENKEL, and others. Regarding—as one is forced to do—the researches in this department as forming the vanguard of pathology, one may without hesitation assign the most important place in the year's work to the

investigations into the etiology of scarlet fever carried on almost simultaneously by Dr. KLEIN in London and Dr. EDINGTON in Edinburgh. The subject matter of their researches is so fresh in the memory of our readers that it is not necessary to treat it in detail. Suffice it to say that Dr. Klein succeeded in obtaining from the discharges of ulcers in the udder and teats of cows, to whose milk Mr. POWER traced the source of an epidemic of scarlet fever, a streptococus which he subsequently isolated from the blood of scarlatinal patients; whilst, as to Dr. EDINGTON'S study of the microbes of scarlet fever, not only were various forms of microbe found, but a bacillus, which was discovered in the blood before the third day, and in the desquamating cuticle at a later period. Dr. KLEIN was unable to confirm Dr. EDINGTON'S observations, and a committee of the Edinburgh Medico-Chirurgical Society reported that further evidence was needed before concluding that the bacillus was pathogenic and specific. Cognate to these researches is the very recent investigation of Professor CROOKSHANK into a contagious malady of cows, which he believed was identical with the disease investigated by Dr. KLEIN, which, according to Professer CROOKSHANK, yielded the same microbe, but with which no scarlatinal connection could be traced. Dr. KLEIN disputed the identity of the two cow diseases, whilst Professor CROOKSHANK adduced strong evidence in support of the cases he examined being vaccinia. Several points of importance to the public health arise out of these inquiries, and we are probably on the threshold of an investigation which may prove to be of the greatest consequence. Towards the close of the year, also, it was announced from Berlin that DR. SCHEUERLEN, assistant to Professor LEYDEN at the Charité Hospital had discovered the "bacillus of cancer." That cancer may depend on the presence of a microbe in the tissues has been of late years suggested in more than one quarter; but by none has the hypothesis been more philosophically or lucidly stated than it was by Sir JAMES PAGET in the Morton Lecture, delivered at the Royal College of Surgeons on Nov. 11. Sir JAMES contrasted the mode of origin and development of cancer with that of other specific diseases, and considered the anology close enough to warrant the inference that some "morbid substance," "microbe or ptomaine," was the source of the tissue change. However, such careful investigators as Messrs. BALLANCE and SHATTOCK reported to the Pathological Society their cultivation experiments upon morbid growths, which all yielded negative results; and in all quarters there is a tendency to accept SCHEUERLEN'S statement with reserve. The subject of cholera has been enriched by the publication of von PETTENKOFER'S recent writings; and during the year there was issued the report of the English Commission sent in 1885 to Spain to study the subject. The conclusions arrived at were not very definite, but a new and hitherto undescribed micro-organism was reported to have been constantly found in the dejecta and intestines; whilst the comma bacillus was suggested to be a concomitant of the premonitory diarrhœa. It may be added that the practical value of the comma bacillus as a means of diagnosis of Asiatic cholera has been successfully tested in an outbreak on board an Italian emigrant ship which arrived at the port of New York. The Pasteurian treatment of hydrophobia has been much criticised both in the Paris Academy of Medicine, chiefly by M. PETER, and in articles and monographs by various writers. The report of the English Commission was, on the other hand,

highly favorable to the method adopted by M. PASTEUR, although it recommended stringent police regulations rather than the institution of preventive inoculation. The ever interesting subject of fever was discussed by Dr. MACALISTER in his Gulstonian Lectures, which treated it mainly as a question of the nervous mechanism concerned in heat production, regulation and loss; and also by Professor AUSTIN FLINT before the Washington Congress, who rather avoided that line of inquiry and dealt with the febrile state from the metabolic standpoint, with especial reference to its treatment. Mr. NORTH, the research scholar of the Grocers' Company, gave a course of lectures upon malarial fevers, based upon his studies of these diseases in the Campagna, and devoted part of his course to the subject of their pathology. Beri-beri has been studied by several writers, including an interesting report by Dr. KYNSEY, of Ceylon, identifying the disease with anchylostomiasis. Actinomycosis hominis has received fresh eludication at the hands of Dr. MARKHAM SKERRITT and Dr. HEBB. Syphilis, with especial reference to its microbes, has been studied by BENDER and DOUTRELEPONT; and LUSTGARTEN'S bacillus, although sparsely distributed, has mostly been recognized. The connection of microbes with tetanus has received much attention in the contributions of ROSENBACH, HOCHSINGER and SHAKESPEARE. Endocarditis has been studied by FINKEL and SANGER, who found micrococci in the diseased valves in several cases, the chief forms being staphylococci; and by PRUDDEN, who published details of a careful study of one case of mycotic endocarditis. KINNICUTT recorded a case of pernicious anæmia due to atrophy of the gastric mucosa, and the same subject has received fresh contributions from HENRY and OSLER. Peripheral neuritis has been described in Raynaud's disease by Dr. WIGLESWORTH, and further confirmation of its existence in association with tabes, diphtheria, and other diseases has been general. Dr. FINLAY contributed to the Royal Medical and Chirurgical Society a paper on alcoholic paralysis in which the existence of multiple neuritis was well shown. The paralytic sequelæ of fevers received an explanation in the carefully reported case by Dr. BARLOW of myelitis occurring in the exanthem stage of measles. Thrombosis has been studied by HANAU, EBERTH, SCHIMMELBUSCH, and WEIGERT, chiefly as to the formation of the thrombus; whilst Dr. COLLIS WARREN published a careful memoir upon the healing of arteries after ligature. Dr. METSCHNIKOFF has supplied fresh facts in support of his contention that phagocytes play a large part in morbid processes, especial in diseases depending upon bacterial invasion. Mr. BLAND SUTTON continued at the College of Surgeons his lectures on evolution in pathology, and Mr. BOWLBY took for his subject that of injuries and repair of nerves. Lastly may be noticed the appearance of a fifth edition of Professor ZIEGLER'S admirable text-book on Pathology, and the commencement of a new pathological serial (*Bietrage zur path. Anat.*) under the editorship of Professors ZIEGLER and NAUWERCK, primarily intended as a medium for the publication of monographs based upon the researches carried on in the various continental laboratories.

The Sectional Anatomy of Labor.

DR. A. H. F. BARBOUR, lecturer on Midwifery and Diseases of Women, in the Edinburgh School of Medicine, has published a series of articles on the sectional

anatomy of labor, in the *Edinburgh Medical Journal*, Nov., 1887. The following is a summary of the anatomical and physiological points of his papers: (*a*) 1. No sections of the whole cadaver from the third stage have yet been made. 2. Porro uteri show that the placenta can follow a diminution of its site to 4x4½ inches without separation, and that this amount of contraction and retraction brings the wall into contact with the placenta all around. 3. Stratz's sections of the uterus and placenta are the only ones we have, as yet, from the third stage, but are of the uterus removed from the body. The one which illustrates placenta prævia shows the placenta separated, and the uterine walls embracing the placenta which is presented by its edge. The one which illustrates eclampsia shows abscence of contraction and retraction over the unseparated portion. (*b*) 1. The question of separation of the placenta must be kept quite distinct from that of its expulsion. 2. Evidence is accumulating that, at the commencement of the third stage, the placenta is still as a whole or in a great part attached. 3. Diminution in the area of its site to 4 x 4½ inches does not mean separation of the placenta. 4. Diminution of area beyond the foregoing limits, plus the action of the uterus as a whole upon the placental mass, is considered the formal cause or force which tends to produce separation, and the pains of the third stage are the efficient cause or agent through which the force acts. Effusion of blood is an accident and not essential. 5. During the contractions of the third stage the surface of the placenta is thrown into heights and hollows; the heights do not necessarily mean effusion below. 6. The placenta usually descends with its edge, or a point near its edge, first, as Duncan described; though sometimes the fœtal surface comes first, as Baudelocque and Schultze described. The third stage is regarded as a second labor in miniature. The pain which expels the child is followed by a pause, during which the placenta is still as a whole or in a great part attached; then labor comes on again, and the placenta is first detached and then expelled. This second labor is not always marked off by a distinct interval from the first, for one long pain may expel the child, and then detach and expel the placenta.

Progress in Anatomy.

The *British Medical Journal*, Dec. 31, 1887, in its review of the literature of Anatomy for the year 1887, says: Although the year has afforded no remarkable achievements in anatomy, yet it has been marked by steady progress. The establishment of a society with the title of "The Anatomical Society of Great Britain and Ireland" is in itself an important event. The support which it has received from the leading teachers of the three kingdoms, and the work it has already done, amply justify this addition to the lengthy list of our societies; its career promises to be useful and distinguished.

Where so much unostentatious labor has been bestowed, we can only endeavour to mention contributions of special interest and of direct bearing upon human anatomy. A work upon *The Topographical Anatomy of the Child*, by Dr. Johnson Symington recommends itself as promising to be especially useful. The differences between a child and an adult are by no means inconsiderable; but, as a rule, anatomists have few opportunities to study them. The work to which we have referred helps to overcome this disadvantage. It is founded upon observations made from frozen sections, and the results afforded by that method have

been well delineated. Working by the ordinary methods, HENKE has produced an atlas of the topographical anatomy of the adult, but without, as might easily be imagined, throwing any new light upon this well-worn subject. A fresh interest has been given to the osseous system by the researches, which show how much it varies in different races of mankind. SIR WILLIAM TURNER, in the *Challenger Reports* of last year, threw a great deal of light upon this important question, and recently, in the *Journal of Anatomy and Physiology*, he has placed his conclusions in a more available form. In the same journal, SHUFELDT has made a further addition to his series of papers upon the Craniology of the North American Indians. From another point of view, the osseous system has been studied by Mr. G. B. HOWES, in an interesting paper on the Morphology of the Mammalian Coracoid (*J. A. and P.*); and, in the *Morph Jahrbuch*, is a paper of the same nature, treating of the elbow. The anatomy of the shoulder-joint has been exhaustively discussed by REYNIER (*J. de l'Anat. et de Phys.*), who would assign that articulation several ligaments not usually recognized in our schools.

Working upon the lines laid down by TIDEMANN, ALBRECHT and others, BAUR has, in the quarterly *Journal of Microscopical Science*, made a courageous attempt to show that the quadrate is not, in the higher mammals, represented by the malleus, but that it belongs to the palatine arch and is represented by the zygomatic process of the squamosal. The interest of these investigations is evident if we compare them with those of other anatomists; as, for instance, Mr. BLAND SUTTON'S, described in the paper which he read before the Anatomical Society, and which has been published in the *Journal of Anatomy and Physiology* (A Critical Study in Cranial Morphology). KUTSCHENKE, in the *Archiv für mic. Anatomie*, has also been investigating the same region, with the view of determining the fate of the branchial clefts of the mammalia. Those who are interested in the development of the ear and thymus, will read this paper with the care it deserves. Here again we are confronted with new views; but the investigations are difficult and open to many fallacies.

The nervous system has not been neglected, and OSBORNE has contributed to the *Morph. Jahrbuch*, a paper upon that much vexed question, the origin of the corpus callosum. Also, Mr. PATERSON has made a substantial addition to our knowledge of the limb plexuses, both as regards their anatomy and their development (*J. A. and Phys. and Q. J. of Micros. Sci.*). Although not of such exact anatomatical bearing, we may mention in this connection a paper read at the Anthropological Society by Mr. ROLLESTON, upon the hemispheres of an adult Australian brain, and another account of the anatomy of a microcephalic brain by TOURNEUX and HERMANN (*J. de l'Anat. et de la Phys.*) The genito-urinary system has also had good work bestowed upon it. In our columns have been published abstracts of Mr. LOCKWOOD'S Hunterian lectures upon the development and transition of the testicle. It is interesting to note that this observer is unable to accept the recent views as to the epiblastic origin of the Wolffian duct, and his lectures are, in other respects, an endeavour to apply the teachings of comparative embryology to the human embryo. Mr. ROBINSON has contributed an interesting paper on the position and peritoneal relations of the mammalian ovary, and mentions a curious bunch in which, in some animals, that organ lies. The urogenital apparatus of fishes has also been described by BROCK *Zeitschrift für wissenschaftliche*

Zoölogie), and G. B. HOWES has given an account of curious abnormalities of the sexual organs of certain lizards.

The variations of the arteries of the orbit, more particularly of the ophthalmic, have been ably pursued by MEYER (*Morphologischer Jahrbuch*); and in his paper read before the Anatomical Society, WINDLE has given an exhaustive account of the variations of the arteries of the base of the brain. The aortic arches of the vertebrates has also been further elucidated by BOAS in the *Morphological Yearbook*; and in the same periodical we find a paper by HOCHSTETTER upon the comparative anatomy and development of the venous systems of amphibians and fishes. In his paper read quite recently before the Royal Society upon the early development of the pericardium, diaphragm, and great veins, Mr. LOCKWOOD makes an addition to our knowledge of that branch of development which was pronounced to be the most important since Mr. Marshall's monograph upon the same subjeet. The development of the lymphatic system is also the subject of a recent posthumous paper of BUDGE'S, which was prepared by HIS from material found after the death of that lamented anatomist.

To our knowledge of the muscular system the veteran WENZEL GRUBER has made a further contribution in the shape of another of his series of monographs. This time he treats of the flexor brevis minimi digiti pedis. Working in the same direction Dr. ST. JOHN BROOKS has contributed two important papers upon the short muscles of the hand and foot (*Jour. of Anat. and Phys., and Proc. of Anat. Soc.*)

The works which have been mentioned may be claimed to have a very direct anatomical bearing, and our space prevents us from mentioning others which are founded upon this science; but perhaps we may mention Sir RICHARD OWEN'S palæontological papers in the Royal Society's *Transactions*, and also Dr. SHAW'S paper on the Relations of the Mammalia to the Ichthyopsida and Sauropsida (*Jour. of Anat. and Phys.*); and, finally, Professor MACALISTER'S address upon the Anatomatical and Medical Knowledge of the Ancient Egyptians (*Proc. of the Royal Inst.*) Truly, although the learned professor showed that the ancients knew a great deal, yet we cannot help thinking, when we review such a year as that which has passed, that anatomy may still be claimed to have made a certain amount of progress.

The Progress of Physiology.

THE *British Medical Journal*, Dec. 31, 1887, gives the following summary of the progress in knowledge of physiology during the year 1887 :

Nerve and Muscle.—KUHNE, in the *Zeitschrift für Biologie*, has published an interesting paper on the power of nerves to conduct both centripetally and centrifugally. He deals solely with motor nerves, and finds in the branches of a nerve supplied to a muscle that there is an intimate relation between them, so that in two parts of a muscle separated by a tendon or a cut, but joined by branches of the same nerves, stimulation of one of these branches will produce contraction, not only in the part of the muscle it supplies, but also in the other parts ; the impulse must, therefore, be conducted backwards along the nerve. There is no such relation between adjoining muscles, even though they are supplied by branches of the same nerve. MAY has published an interesting paper bearing on the same subject, and considering the mode of action of curare. ROTH has described, in the voluntary muscles of cats, dogs, and rabbits, certain elements

which he considers as "neuro-muscular." These are circular on section, and from 75 to 150 *m* in diameter. There is a distinct sheath which surrounds a white muscle fibre. VON ZEREG, experimenting on the excitability of nerve and muscle in the hypnotic state, found that it is increased to the constant current and diminished to the Faradic, an approach, it will be noticed, to the so-called reaction of degeneration. FELLNER has found that the uterus is innervated in a similar manner to the rectum, the nervi erigentes, on stimulation, cause a contraction of the uterus, while the hypogastric nerves cause a dilatation, as measured by the opening or closing of the the cervix uteri. The nervi erigentes would, therefore, be the motor nerves of the uterus or vagina, while the hypogastric would be the inhibitory nerves. GASKELL has shown that the nervi erigentes have the cord in the anterior nerve-roots and not in the posterior, as Stricker states. The muscle sound is usually ascribed to vibration occurring while the muscle is in a state of tetanus, such, for example, as occurs in a voluntary contraction of a muscle. This idea has militated against the idea of the first sound of the heart being a muscular tone. HERROM and YEO, from experiments, conclude that during the single contraction of a muscle, a sound is heard very similar to the first sound of the heart. MACWILLIAM has confirmed this. The knee-jerk, whatever its explanation, is a single contraction of a muscle; by listening to the quadriceps extensor femoris during its production, a distinct muscular sound is heard.

Central Nervous System.—LANDOIS has tested the effect of various substances in producing convulsions when applied to the cerebral cortex. The substances used were sediments from the urine, acid phosphate of potassium, kreatin, kreatinin, ammonium carbonate, and others; such, in fact, as might produce convulsions in uræmic conditions. These substances applied to the frontal and parietal regions of the brain produced typical uræmic convulsions, which disappear only to reappear, and so on. The medulla oblongata gives rise to tetanic convulsions, as is well-known; while the effect on the spinal cord is to cause rigidity of muscles ending in paralysis. FALKENHEIM and NAUNYN have experimented on the pressure within the brain by inserting a manometer into the posterior part of the sub-arachnoid space. They find that in the dog this pressure varies from 100 to 150 millimetres of water. It is increased by a heightening of arterial blood-pressure, whether caused by the compression of aorta, by dyspnœa or by strychnine poisoning; it is also increased by venous stasis, artificially produced. The same authors think that the cerebro-spinal fluid is a true secretion of the choroid plexuses; they state that its rate of formation is about one cubic centimetre in six to forty minutes. Increase of arterial pressure increases temporarily the flow of cerebro-spinal fluid, which is greatly increased by the injection of a large quantity of normal saline solution into the blood. The direction of of this research would seem to lead to results having a distinct clinical bearing.

The Heart and Innervation of the Heart.—KABRHEL has found that the lymph hearts of the frog may continue to beat after destruction of the spinal cord, if this be done slowly and not suddenly. Also that, with an intact spinal cord, the hearts may be made to stand still in diastole by reflex excitation, in contradiction to was found by Schiff. Kabrhel, therefore, considers that there is an inhibitory centre in the spinal cord for the lymph heart analogus to the cordio-inhibitory centre in the medulla oblongata. Atropine, however, does not remove the inhibitory

action on the lymph heart as it does in the heart. FLEISCHL suggests that the impulse given to the blood by the right side of the heart is of great utility in bringing about some of the chemical changes occurring in the lungs. The carbonic acid, as is well-known, is dissolved in the liquor sanguinis; if a sudden impulse is given to the blood, this will aid in liberating the gas so as to enable it to exude through the walls of the vessels. Without this action of the impulse of the blood, Fleischl thinks that life could not exist two minutes. Regarding the influence on the pulse and blood-pressure of sections of the vagus nerves MUNZEL finds that there may be normal variations. The pulse and blood-pressure rise after the section of one vagus; section of the other is consequently more effective than that of the first. The pulse, in another case, may be slightly, the blood-pressure greatly increased, or *vice versâ*. Section of the vagus may, on the other hand, be without any influence on the frequency of the pulse or the blood-pressure. And, lastly, section of one vagus may produce the full effect of rise of pulse and blood-pressure; section of the second having no effect. The rise of pressure on section of the vagus is a reflex effect, since if the cervical cord be divided previously there is no rise whatever. GASKELL, in a paper discussing the electric changes in the heart while it is inhibited by stimulation of the vagus, states that he has found that in this condition there is a positive variation of the natural current, a positivity of the base to the apex. This result would agree with Gaskell's theory as to the action of inhibitory nerves, namely, that during their action there is construction of tissue going on in the muscular tissue, while, with the action of the accelerator nerves there is destruction of tissue.

Kidneys.—In artificially produced mechanical congestion of the kidney PANETH found that the urine was much diminished, but was greatly increased if nitrate of potassium were given to the animal; this is confirmed by SENATOR and MUNK, who further state that the percentage of urea is diminished, while the amount of chloride of sodium is unaltered and there is a gradually increasing quantity of albumin in the urine. Under the influence of venous congestion these authors conclude that the specific secretion of the kidney is influenced; that, in fact, the cells become diminished in activity, as shown by the diminution in the amount of urea. These researches have a bearing on the two theories of the excretion of urine—the filtration theory of Ludwig and the secretory theory of Heidenhain.

Degeneration and Regeneration of Nerve Fibres.

L. FRANKL VON HOCHWART observes that when the nerves are divided the fibres assume an embryonic condition, in which they differ but slightly in appearance and reaction from fibrillar connective tissue. In the process of regeneration this embryonic material serves as the basis of the nerve fibres. The strands become surrounded by a newly formed medulla, the growth of which is not uniform in the whole fibre. It is probable, too, that new peripheral fibres can arise as in the embryo from nucleated material of low organization surrounding the stump.

The results of Frankl von Hochwart lead him to believe that the position of nerves in the histological series, is not a sharply bounded one, and that there is not a specific difference between the embryonic nervous tissue and connective tissue.—*Wiener med. Jahrbb.* N. F. II. 1. p. 1. 1887.

Primary Cancer of the Left Kidney, with Secondary Deposits in Pleura and Lungs.

In the *Glasgow Med. Journal*, January, 1888, DR. T. MCCALL ANDERSON, Prof. of Clinical Medicine in the University of Glasgow, reports a case of this kind, from which we abstract the following account:

The patient was an enginekeeper, 47 years old, who was admitted into the Western Infirmary on the October 25, 1887. The family history, as far as could be ascertained, was fairly good, and there was no evidence of a hereditary tendency to malignant disease. He was rather delicate, and was subject to "coughs and colds," but since adolescence, he had enjoyed good health, and never had a day's illness until two years before the author saw him. At that time, without apparent cause, he had an attack of hæmaturia, which recurred at intervals of from a week to a fortnight for a period of about eight months. For twenty-five years before this the veins of the left leg and foot were varicose, but above the knee they were not dilated. About the time when the hæmaturia commenced, however, the veins of the thigh also became varicose, more especially those about Scarpa's triangle, as well as those of the spermatic cord, and, on admission, there was well marked varicocele of the left side. Twelve months thereafter, following upon a winter of exceptionally heavy work, he began to feel an uneasiness in the region of the left lower ribs, which, in a week or two amounted to pain, and was accompanied by swelling in that locality. He himself was quite conscious of this enlargement, and that it was tender, especially on firm pressure. For the first nine months it increased slowly and steadily, but latterly with great rapidity, coincident with which the pain became a much more prominent symptom, and extended over the whole of the left side of the abdomen.

For about a month before admission, to these symptoms were added cough and expectoration. The latter was frothy, chiefly mucoid, and contained no blood, while the former always set in when he lay upon his right side, as the result, he thought of the tumor falling to that side. He habitually lay upon the left side, against the abdominal tumor, partly to prevent the access of coughing, and partly to relieve the pain in the side.

On examining him, it was found that debility and emaciation were extreme, while his face had an anæmic and yellowish appearance, suggestive of malignant disease. The blood corpuscles were but slightly reduced in amount, there being 4,500,000 corpuscles, instead of 5,000,000 in a cubic millimetre of blood.

A huge tumor occupied the whole of the left side of the abdomen and extended considerably to the right of the middle line. It was firm, tender, and very irregular and nodulated. It was dull on percussion *over its whole extent.* From October 25, when he came into the Infirmary, till November 9, when he died, it grew with great rapidity, to the extent nearly of one-third. It was diagnosed as cancerous, because he had arrived at that time of life when malignant disease begins to be common, because of his general state above referred to, and because of the great size, rapid growth, tenderness, and nodular character of the tumor. As to the seat of the disease, it was a question whether it was a diseased spleen or a kidney, or independent of either organ. In favor of the last view was the fact that, at the very outset of his illness, varix of the thigh and spermatic cord were well marked, a condition much more likely to occur at an early period

of the illness, if its starting point was from the peritoneum or intestine. In favor of splenic disease was the circumstance that no line of clear percussion, corresponding to the descending colon, could be made out in the front of the tumor; but the reason for this, as the *post-mortem* examination showed, was that the tumor had pushed the colon away to the right.

In favor of its being a kidney tumor was the very significant circumstance that one of the first symptoms was recurrent hæmaturia. It is true that, while he was in the Infirmary, the urine was repeatedly examined, and was always found to be normal, but that was accounted for on the supposition that the ureter was obstructed. On *post-mortem* it was found that hardly any kidney structure was left, and that the ureter was completely blocked, while the right kidney was much hypertrophied. All the urine had therefore come from the healthy kidney. On examination of the chest, further evidence of disease was discovered. There was fulness over the greater part of the left side, with defective movements, great dulness and resistance on percussion, feeble breath sounds, and diminished vocal fremitus and resonance, especially at the base. These symptoms pointed to copious pleuritic effusion, and it was suspected that secondary cancerous deposits had taken place in the pleura and had excited pleurisy, a suspicion which *post-mortem* examination proved to be correct.

Post-Mortem Characters.—According to the report of Dr. Joseph Coats, the tumor, as it lay in the abdomen, occupied the greater part of the left side of the cavity, extending from the diaphragm above, to an inch from the symphysis pubis below, and projecting as much as three inches beyond the middle line. Its total measurement from above downwards was twelve inches, and from side to side seven inches; its weight was about twelve pounds. The tumor was covered by peritoneum, and had pushed the abdominal organs greatly forwards and to the right. The spleen lay on the anterior surface of the tumor, somewhat flattened and enlarged, measuring six inches in long diameter and weighing ten and a half ounces. Its anterior edge almost reached the middle line. The stomach was situated almost entirely to the right of the middle line. The descending colon was displaced forwards and to the right; it passed over the anterior surface of the tumor and was in contact with the anterior wall of the abdomen. The transverse colon was doubled up, and in order to be accommodated made an excursion to the pelvis and back. The small intestine was accommodated half in the pelvis and half in the right lumbar region.

The tumor after removal was seen to be surrounded by a capsule which was only incomplete at the upper extremity, and it had the general outline of a greatly enlarged kidney. It was somewhat lobulated, and about a fourth up from its lower extremity it presented a somewhat deep depression, suggesting the hilus, and situated at the inner border of the tumor. The ureter, of about the normal dimensions, was traced into this region, but its calibre was occupied by an elongated yellow plug, which, however, was not firmly adherent. A probe could be passed through the ureter and it issued in the midst of the tumor. On making a longitudinal incision into the tumor it was seen that the probe inserted into the ureter issued in a space which was evidently the pelvis of the kidney, being lined with a distinct membrane, but greatly distorted by the new formation.

The tumor on section was seen to be composed of larger and smaller lobules of exceedingly soft tissue. The greater part of the tissue had a dead white or yellow appearance as of an indefinite coagulum. This frequently showed signs of disintegration, and in the upper half of the tumor there was a cavity large enough to hold the closed fist, and lined with shreddy broken down material. At the extreme upper extremity there were a few lobules of a soft grey transparent tissue, in the midst of which the opaque degenerated appearance was just beginning. At the lower extremity the lobules were as a rule rather smaller in size, and presented in general a shape suggestive of the enlarged calyces in hydronephrosis. It was only at one place near the lower extremity that any proper kidney tissue was visible. Even here it was merely a trace of the regular brown structure of the organ, and it was occupied by one or two small pale tumors, which in some parts showed softening in their central parts.

The upper extremity of the tumor showed an extension upwards in the form of irregular lobules of soft pale tissue, which, passing along the posterior wall of the abdomen behind the peritoneum, extended into the pleura, apparently by penetrating behind the posterior attachments of the diaphragm. The pleural cavity contained a large quantity of blood-stained fluid and the diaphragm on the left side was greatly flattened. The tumor which had penetrated into the pleura was adherent to the lower lobe of the lung, and there were, besides the mass continuous with the main tumor, several isolated rounded tumors, attached to the diaphragmatic and pulmonary layers of the pleura. These varied in size, but some were as large as hazel-nuts. This lung was completely devoid of air and greatly reduced in bulk. In its substance as well as in that of the other lung there were a considerable number of white tumors, of various sizes, some of them as large as marbles. The liver was slightly enlarged, weighing four pounds nine ounces, and was found to contain only one small white tumor about the size of a pea. The right kidney was much enlarged, weighing ten ounces. It was rather hyperæmic, but its structure presented no apparent alteration. The veins of the left testicle were much enlarged and varicose. Those of the left leg were also varicose.

Physiological Variations in the Shape and Position of the Liver.

In a communication published in the *Edinburgh Med. Journal*, Feb., 1888, Dr. Johnson Symington, lecturer on anatomy in the School of Medicine, Edinburgh, directs attention to the changes in the position and shape of the liver resulting from variations in the conditions of the neighboring organs, more especially the stomach. He finds that the movement of the liver is a somewhat complicated one, which may be roughly described as a rotation round a vertical axis passing through the inferior vena cava. The portions of the liver which undergo the greatest displacement are the left lobe and the anterior part of the right lobe. It is interesting to note, in connection with this, how the relations of the peritoneum facilitate this movement. Thus the whole of the anterior surface of the liver and the corresponding part of the abdominal wall are covered by peritoneum, while the left lateral and suspensory ligaments of the liver are long mesentery-like folds. When the stomach is empty the ligament is relaxed

and thrown into a number of folds; as the stomach fills, the anterior surface of the liver glides over toward the right side, and the ligament ultimately becomes tense, and thus tends to check the excessive movements of the liver. The round ligament and the left lateral ligament are associated with the suspensory ligament in confining the movements of the liver to within a certain range. In the fœtus the stomach is empty, or nearly so, and it is fortunate that this is the case, for a dilatation of the stomach by pushing over the liver to the right side and consequent bending of the umbilical vein would be very apt to obstruct the supply of arterial blood to the fœtus.

While the left lobe and the anterior part of the right lobe are very mobile, certain other portions of the liver undergo little or no change in consequence of distension of the stomach. He has been unable to find evidence of any change in the position or direction of the inferior vena cava. With reference to the Spigelian lobe, he says that if there be any change in its position it is a very slight one. The surface of the lobe lies in contact with the diaphragm (except that both are covered by peritoneum) and looks backwards and inwards. Whether the stomach is empty or full, the liver always retains its general form, which is that of a triangular prism. The transverse diameter is, however, considerably diminished, and the vertical extent on the right side increased by a distension of the stomach. This increase in a vertical direction is what one would naturally expect from the compression of a plastic mass like the liver between a distended stomach and the right lateral wall of the abdomen. The author's paper is illustrated by plates which assist very much in making the description clear.

Parasitic Fœtus.

In the discussion which followed the exhibition of Mr. OWEN's specimen of an anomalous sacral appendage, at the Pathological Society, London, Feb. 7, 1888, MR. BAKER and Mr. BLAND SUTTON expressed the opinion that the appendage ought to be considered as a parasitic fœtus. Mr. Sutton also referred to an example of this monstrosity which is at present being exhibited in London. The subject, "Laloo," is a lad from Oudh, aged 17, about five feet two inches in height, and of a very dark complexion. His expression is pleasing and intelligent, and his disposition very cheerful. There is no family history of any monstrosity. The mass, which appears to be of, at the most, very limited sensibility, is attached chiefly to the epigastric region. It consists of the structures forming the shoulder-girdle, including the integuments, which bear a pair of nipples; and of a second part, including the buttocks and lower extremities. The pubes is hairy, the penis well-formed and its glans uncovered, urine occasionally passing from it. The anus appears to be imperforate. The arms are very long, like those of an American spider-monkey (*Ateles*); the buttocks form a projection rather bulkier than a cocoa-nut; the left foot hangs down nearly as low as the knee. Both extremities present numerous deformities, which cannot be satisfactorily described in this paragraph. Next to the fact that there is a large parasitic fœtus dependent from the epigastrium, the most singular feature of the case is the complete separation of the shoulder-girdle from the lower parts of the parasite. The two parts appear to be separately united to the boy's trunk by freely movable joints; they are invested by a common integument, and divided from

each other by a deep groove. We understand that Mr. Sutton and Mr. Shattock examined "Laloo" on Wednesday, for the purpose of furnishing the Pathological Society with a full report of the case.—*British Med. Journal*, Feb. 1, 1888.

Absence of Free Hydrochloric Acid in the Contents of the Stomach.

Drs. Wolff and Ewald contribute to the *Berliner Klin. Wochenschrift*, No. 30, 1887, the report of eight cases in which hydrochloric acid was absent from the contents of the stomach. Some of the persons in whom this was found were healthy, and some had slight gastric trouble. After this absence of free acid was demonstrated, thirty drops of the official hydrochloric acid were given to each individual after dinner; the result was entirely negative upon the secretion of the acid. The investigation of the total amount of organic acids as well as of hydrochloric acid was instituted three times according to the method of Cahn and von Mering.

The following is a statement of investigations by Wolff and Ewald: 1. That the hydrochloric acid may be wanting from the contents of the stomach, and not be found again even after the administration of the acid, according to the test of the ordinary reagents, without there being present, in general, a manifest disease of the stomach. 2. Also in diseases of the stomach, which are certainly not of a carcinomatous nature, hydrochloric acid is wanting. 3. That there are cases also in which even the peptone-forming power of the stomach is wanting, and that this occurs when every carcinomatous affection is certainly absent. In conclusion, Ewald guards himself against the supposition that he has become converted to the opinions of Velden and Riegel, with reference to the typical absence of hydrochloric acid in carcinoma.—*Deutsche Medizinal-Zeitung*, January 2, 1888.

The Transport of Oxygen.

Dr. Hénocque is the inventor of a method of examining the blood, based on the fact that in examining the thumb-nail with a small spectroscope, one could follow the transformations of oxyhæmoglobin, the substance which, contained in the globules of the blood, serves to transport in tissues the oxygen furnished by the air. In this way, one can easily measure the rapidity with which the interchanges of the oxygenated blood and the anatomical elements takes place. Dr. Hénocque, has just performed some physiological experiments from the tower of Eiffel, which is being erected for the great exhibition of 1889. The object of the experiment was to determine with precision the influence exercised on the activity of these changes by the ascension of 270 steps of the staircase to reach the height of 182 feet, which nearly represents that of the first floor of the tower. The experiments performed by Dr. Hénocque on these tourists have confirmed the results obtained by him in other circumstances, viz.: that the activity of reduction is augmented by the muscular exertion caused by the ascension of a staircase, or in other words, that the muscular labor is accompanied by a greater activity in the exchange of the oxygen between the tissues. —*Lancet*, Feb. 18, 1888.

Tuberculous Abscess of the Brain.

In the *Deutsche med. Wochenschrift*, No. 18, 1887, A. FRAENKEL reports a case of tuberculous abscess of the brain. The patient was a young man, 23 years old, suffering with slight catarrh of the lungs, in whom transient disturbances in speech occurred. Some months later there suddenly occurred aphasia, and, in brief, paralysis of the tongue, of the arm, and right facial nerve; the sensorium remained intact. An examination of the lungs demonstrated bilateral catarrh of the apices. Percussion of the skull in the neighborhood of the third left frontal convolution was very painful. The pulse was slightly slowed; there was no fever. At the autopsy there was found an abscess of the size of a hen's egg in the medullary portion of the left hemisphere, which reached to the cortex of the third frontal convolution, and extended from here to the lower and median part of the central convolution, without direct disturbance of the cortex, laying hold upon the capsule, but leaving the great ganglia intact. The envelope of the abscess was formed by a firm membrane. In the inner surfaces of this, and in the pus of the abscess, numerous tubercle bacilli could be demonstrated. For the origin of the abscess, the author assumes a softening of a large solitary tubercle with subsequent suppuration.—*Centralblatt f. d. med. Wissensch.*, Dec. 10, 1887.

Vaginal and Uterine Lochia.

DR. ALBERT DOEDERLEIN of Leipsic, has published some researches on the bacteriology of the lochial discharges of women in both normal and diseased puerpual states. He finds that the vaginal discharge must be examined separately from that which originates within the uterus, the clinical importance of micro-organisms being very different in the two cases. The vaginal lochia always contains a multitude of germs of various kinds, and if introduced into the bodies of animals is capable of producing abscesses. The uterine lochia, on the other hand, contains, in the normal puerpual condition, no germs whatever. When these appear, or at least soon after their appearance, a rise of temperature occurs, and when this latter has fallen the lochia is again found free of germs. Its removal appears to be due to increased secretion and separation of pus cells. Healthy uterine lochia may be introduced into the bodies of animals without causing any harm, but when there is fever and the lochia contains germs, septic symptoms are produced in the animals. In some cases not merely germs but streptococci have been found in the uterine discharges of patients with puerperal fever.—*Lancet*, January 28, 1888.

New Artificial Serum.

In order to obviate the many inconveniences of the diluting fluids which are in use, M. MAYET proposes (*Compt. rend.* 1887, CV. 120) a composition which is to be free from these defects. The mixture is prepared in the following way: 30 grains of neutral phosphate of potassium are dissolved in 3 fluid ounces of distilled water, and this solution is then mixed with cane sugar until the specific gravity of the whole mixture reaches 1085. It is intended especially for the dilution of the bloqd in the counting of the blood corpuscles.—*Centralblatt f. d. med. Wissensch.*, January 28, 1888.

Upon the presence of Ganglia and individual Nerve Cells upon the Ventricles of the Heart of Man, of Mammals and of Birds.

In a prelimary contribution upon this subject to the *Centralblatt f. d. med. Wissensch.*, No. 42, 1887, Dr. Kasembeck states that in mammals and birds there are ganglia and individul nerve cells upon the surface of the heart, for the most part upon the left ventricle, occupying the anterior and posterior longitudinal fissures. In the pig the greatest number were found, and in two instances the ganglia were visible with the naked eye, once in the anterior and posterior longitudinal fissure, and in the second instance, in the right arterial conus, and the posterior surface of the left ventricle.

Congenital Dextrocardia.

A careful review of the literature of this subject has led Prof. Schroeter, of Vienna, to the conclusion, (*Berliner klin. Wochenschrift*, XXIV. 25, 1887), that until his present one, there has been no case of dextrocardia observed in the living body, and that all the cases were proved to be such only by the autopsy. Dippe remarks that the case which the author himself has reported recently in detail, is not altogether clear, so that the conclusion is that congenital dextrocardia, if it ever occurs, does so with extreme rarity.

Primary Actinomycosis of the Brain in a Woman.

Bollinger reports a case of this kind to the *Münchener med. Wochenschrift*, No. 41, 1887, which is the first one ever observed in a human being. The patient was a women 26 years old, in whom the first symptoms of the disease—headache, and paralysis of the muscles of the eye, the latter disappearing after a few months—occurred one year before her death. At the autopsy an oval actinomycotic tumor as large as a good-sized hazel nut was found in the third ventricle. No explanation of the manner in which the fungus had reached this position is given.

II. MATERIA MEDICA AND THERAPEUTICS.

Progress in Therapeutics.

The *Lancet*, Dec. 31, 1887, in its report upon the Progress in Therapeutics during the year 1887, says: If we may judge from the writings of the past year, the chief result of therapeutics has been to gratify the taste, rather than cure the diseases of our patients. One most important fact is the free circulation of saccharine, brought about by manufacturing enterprise, which ever follows in the wake of physiological chemistry. Another important acquisition of the year has been the discovery that antipyrin and antifebrin are not only of value in reducing the temperature of fever, but also have the property of relieving many cases of nerve pain. Not one of the least important contributions to the study of antipyrin is that by ALBERT ROBIN, which recently appeared in the *Gazette Médicale*, No. 50. A great deal of attention has been given to the treatment of heart and lung disease. Strophanthus has had a more extensive trial in the treatment of heart disease, and very various opinions have been expressed as to its capacities for good; the general conclusion to be arrived at from an impartial study of what has been written must be that further experience is required before we can rightly appraise its value, if it has any, or before we can determine in which class of case it can produce the best effects. The treatment of lung diseases by the rectal gaseous medication has had a fair trial. It has failed to sustain the reputation with which it was launched upon the medical world, at least in regard to pulmonary phthisis; and though it may be good in some cases of bronchial disease, yet other methods of treatment are at least as efficacious. Injections of carbolic acid and of hyperosmic acid have been employed, apparently with considerable success, in cases of chronic muscular rheumatism, and that uncertain affection or affections to which the name of sciatica has been attached by clinicians. In the treatment of skin diseases, especially of a limited character, the method of employing a varnish so ably advocated by AUSPITZ has met with increasing favor from dermatologists and others. The chief feature of the method is to form an artificial film or cuticle. A solution of one part of purified gutta-percha in ten parts of chloroform is known as traumaticine; it forms a softer and thinner film than gelatine and collodion, and, besides, causes neither tension nor pain. This matrix may be impregnated with chrysarobin in the treatment of psoriasis. The scales should be first removed by soap and water and the solution painted on the affected parts with a thin, short-cut pencil-brush. Dermatine made of copal dissolved in turpentine is a new and valuable varnish. The value of this method is largely due to the circumstance that the atmosphere is entirely prevented from assisting at the development of the skin disease, and there cannot be the shadow of a doubt

that our atmosphere possesses in its chemical, mechanical, and bacterial impurities a great power for harm. Dr. SHOEMAKER contributed an article to our columns on "Rectal Alimentation and Medication in Diseases of the Skin." In cutaneous diseases suppositories are the most convenient form of medicating the system by the rectum, since they are more slowly absorbed than solutions; whilst the ease, cleanliness and safety of administration more than compensate for their slightly retarded action, according to this authority. The nasal treatment of whooping-cough by various substances of an antiseptic and anæsthetic kind is one which has found some favor with the profession in England. Of the value of cocaine in congested states of the nasal mucous membrane, everyone who has employed a strong solution has satisfied himself. The treatment of gall-stones by the use of a decoction of a well-known fern—asplenium ceterach or doradilla—and also by very large doses of olive oil, is amongst the therapeutical singularities of the year; and there are grounds for believing that each of these remedies may be found of value. On the theory that asthma is due to spasm of the involuntary muscular tissue of the bronchial tubes, Dr. FRASER, of Edinburgh, tried the action of nitrite of amyl and other allied bodies. He watched the progress of the physical signs whilst these substances were operating in the system. Considerable success attended this treatment. The nitrite of amyl was given in solution, five minims in two drachms of water, or inhaled, ten minims on blotting paper at the bottom of a small glass tumbler. The nitrite of ethyl—nitrous ether—acts well in ten-minim doses of a twenty-five per cent. alcoholic solution. Of the nitrite of sodium, ten minims of a 10 per cent. solution, and of the nitro glycerine, five minims of a 1 per cent. solution, were employed. The use of the nitrites is well-known, but perhaps not so widely practiced as could be wished for the welfare of our patients. The treatment of cancer has not unnaturally been the subject of much writing in our columns, both from contributors and by ourselves. We must not despair of discovering a means for checking the growth of malignant diseases, and in the words of Sir JAMES PAGET, "we might well be nearly content if we could find a medicine as efficient against cancer as mercury and quinine are against syphilis and ague, especially as the recurrences of these diseases are less, not more severe than the primary." Not one of the least valuable therapeutical attempts of the year is the treatment of the "Green Diarrhœa" of infancy by means of lactic and other acids, based presumedly on the belief that this complaint is due to the growth of a chromogenic bacillus. The uses of cocaine have become better understood, whilst its employment has been extended to every department of disease, but that it must not be recklessly employed is the lesson to be learned from a consideration of the serious symptoms to which its hypodermic injection occasionally gives rise.

Papers on the treatment of phthisis have appeared frequently in our columns, dealing with the subject from many points of view. We have already referred to the BERGEON method, but of far greater importance than it are the contributions which we have published on the climatic and antiseptic modes of treatment. Morrhuol is another product which deserves some mention, for great expectations have been raised by its introduction into therapeutics as a substitute for cod-liver oil, possessing twenty-five times its weight of the crude

medicament. We would draw particular attention to our articles, by a special correspondent, on the high Altitude Treatment of phthisis. Sparteine and nitro-glycerine have been found by Dr. OSCAR JENNINGS to have the property of relieving the craving for morphia in morphinomania. The paper on the Treatment of Typhoid Fever by the cold wet pack and alcohol, from the pen of Dr. CURNOW, was a valuable contribution to our pages at the commencement of the year. The method of employing fluid vaseline for hypodermic medication is coming into use in this country as on the Continent; it is contended that vaseline is absolutely harmless to the tissues, and may be employed in large doses without causing accidents; but the vaseline must be perfectly pure, which is shown by its not blackening with warm sulphuric acid. Various medicaments, such as eucalyptol, turpentine, iodoform, phenol, iodine, and camphor, may be dissolved in the pure fluid vaseline, and injected in the strength of 1 per cent. or so.

Physiological Action of Arnica Montana on the Circulation.

DR. H. A. HARE, (Univ. of Pa.) Demonstrator of Experimental Therapeutics in the University of Pennyslvania, in a paper upon the physiological action of arnica montana upon the circulation, in the *Boston Medical and Surgical Journal*, Jan. 12, 1888, says, that arnica has been used for several hundred years chiefly as an external application for bruises, cuts, or like local injuries, and much less frequently, internally, as a stimulant in low fevers to the circulatory and even to the general nervous system. Used more largely by the older physicians than those of the present day, many of them asserted that it possessed value in intermittent fevers or in typhoid conditions, while even more favorable reports were made as to its effects in the treatment of peripheral palsies, as of the bladder and auditory nerve. It has also been used in the advanced stages of paralysis depending on centric lesions, after all tendency to inflammation has subsided.

Neligan found it useful in nervous headache. Stoll claims that in the typhoid form of dysentery it should be regarded as a specific. Very few remedies, which have been so rarely used by the physician as has arnica, have found so great favor in the popular mind as has this substance. Nearly every household uses it whenever a sprain or bruise is produced, and it seems hard to believe that the results thus obtained exist only in the imagination of the patient, without any foundation, notwithstanding the fact that Garrod in a series of tests found that he obtained as good results with pure alcohol as with the tincture of arnica. Whatever may be the therapeutic conclusions drawn from empirical experience with the drug, it has certainly been found to be possessed of certain toxic properties, and for this reason it appeared to the writer worthy of a therapeutic study. Viborg reports that it produces in the horse increased cardiac action, flow of urine, and warmth of the skin, followed by a full pulse, muscular tremors and depression. With large doses salivation was increased, and finally, insensibility to external irritants came on. Locally it acts, if concentrated, as a severe irritant.

When a dose of from five to ten drops of the official fluid extract of arnica root is injected into the jugular vein of a dog weighing from fifteen to twenty pounds, the pulse-rate and arterial pressure are for a moment depressed, but in the course of from thirty seconds to a minute return to their normal position. In

about five minutes, however, the pulse-beats become one-third slower than they are normally, arterial pressure remaining unchanged, save that the pulse-waves usually produced by inhibitory stimulation give it a greater range. If under these conditions the pneumogastric nerves be cut, the pulse instantly increases its rate considerably beyond the normal, though not to the point generally produced when the peripheral vagi are in a normal state. This difference was, however, more marked in some cases than in others. We may therefore conclude that the drug stimulates in small ordinary doses the vagal centre in the medulla, thereby producing a slow full pulse, and that it has an effect on the peripheral ends of the vagus for the reason that when these nerves are cut, the pulse-rate only increases somewhat. That this failure of the pulse to become very rapid after vagal section is not due to cardiac depression, is proved by the strong pulse-waves, and the increase, rather than a fall in arterial pressure.

When a much larger dose (80 minims) is given to a dog of twenty pounds weight, the primary slowing does not take place, but in its stead the pulse becomes very rapid with a fall of arterial pressure which, however, soon recovers itself, the pulse still remaining rapid. Under these circumstances it was found that galvanizing the vagus nerves, even for as long as one minute and a half, failed to produce any cardiac slowing, proving palsy of peripheral vagi, and this was also proved by the fact that when the vagi were cut and their peripheral ends stimulated by small doses, large doses immediately produced a rapid rate, but no more than a momentary fall of arterial pressure, lasting perhaps twenty seconds and due simply to the sudden entrance of the drug into the heart *en masse*.

Arnica therefore slows the pulse in ordinary medicinal dose by stimulating the pneumogastrics both peripherally and centrally, increasing the fulness of each pulse-wave, and also slightly the arterial pressure. That the increased arterial pressure is chiefly due to increased work done by the heart is strongly indicated by the fact that in none of the experiments was arterial pressure influenced to an extent, by any dose, except when an enormous amount (80 minims) was injected rapidly into the jugular vein, when there was for the space of from ten to fifteen seconds a fall in pressure very evidently due to momentary heart-failure, as the pressure returned at once to normal as soon as the heart freed itself from the volume of the drug.

That the fluid extract used was pure the author is confident, since it was prepared by a reliable druggist especially for the experiments, and that no fallacy underlies the results of the experiments themselves seems proved by the fact that no less than seven tracings were taken from the carotid artery of as many different dogs, and in all cases the effects were the same.

Terebene in the Advanced Stages of Uterine Cancer.

Betrin (*Nouv. arch. d'obstet. et de gyn.*, October 25, 1887), says that he does not question that, in the early stages of uterine cancer—that is, before the vaginal *culs-de-sac* are invaded—surgical methods of treatment are the most appropriate, whether they consist in amputation of the portio vaginalis, supravaginal excision of the cervix, or removal of the entire organ by the vagina. In more than three-fourths of the cases which appear at the public dispensaries, however, the disease has already reached such an advanced stage that such operations are not feasible;

the treatment of such cases must therefore be merely symptomatic. Three principal symptoms call for active attention—hæmorrhage, pain, and offensive discharges. The hæmorrhages may be relieved by the use of the curette, the diseased tissue being scraped away as thoroughly as possible, and this being followed by the use of the actual cautery, or such potential caustics as acetic acid and chloride of iron. The pain which is often very severe in the pelvis, legs, thighs, kidneys, etc., may be treated with opium in various forms, cocaine, chloral, etc. The discharges, which not only are annoying on account of their offensive odor, but give rise to painful irritation upon the parts with which they come in contact, are to be relieved by means of antiseptic dressings, and for this purpose terebene has been successfully used by the author for a number of years. Before it is applied, it is recommended that the vagina be carefully irrigated with a sufficiently concentrated solution of permanganate of potassium, bromine, or chlorine. The terebene may be combined with equal parts of some fatty oil, pledgets of cotton may be saturated with it, and these may be applied as a tampon, Sims's speculum and Sims's posture being used for the purpose. The operation should be repeated every two or three days, according to the abundance and offensiveness of the discharge. The result of this treatment has been very satisfactory, and seems to retard the progress of the disease. The question of the bacterial origin of cancer is yet an open one. It is quite certain, however, that there are countless numbers of bacteria in the vagina and uterus during the progress of that disease, and the action of terebene in destroying them, and producing a disinfection of the parts to which it is applied, can not but be beneficial.—*N. Y. Med. Journal*, Jan. 7, 1888.

Astringents in Hydrops Bronchialis.

Dr. B. W. Richardson, F. R. S., in a communication to the *Medical Press and Circular*, January 25, 1888, speaks as follows, concerning the use of astringents in this affection :

In one case an astingent mixture was prescribed with good effect. This course is very sound in the class of cases named, and I know of nothing that need stand in its way. We must always remember that hydrops bronchialis is a condition so fatal that when it is present there is no hope until it is removed. As well try to save the life of a drowning man while he is under water as to try save a man drowning in his own secretions by any means that have not for their primary object the liberation of the lungs from the embarrassment in which they are placed. For additional aid to the external measures, the use of an astringent mixture of diluted sulphuric acid is as rational a plan as is the use of the same mixture for the treatment of hæmorrhage or diarrhœa. Neither is there any astringent in the whole list of remedies that acts more directly as an astringent on the bronchial mucous surface. To the acid mixture, opium may be added if sleep is an urgent necessity, for there is no danger in giving gentle repose under an opiate which exerts, on its own part, good astringent properties. A ten minim dose of the diluted acid solution in a half ounce of water may be administered every hour, five minims of Battley's solution of opium being added according to requirements from time to time.

It is customary in cases of the kind under consideration to place hot bottles, or heated bricks to the feet and limbs. The practice is a good one, and may be

followed more freely than usual. It is wise to place the heated bottles, wrapped in flannel, under the arms as well as by the limbs; it is also useful to extend the ends of the flannel from the heated bottles over the body of the patient, and to keep careful watch that the warmth is steadily sustained by frequent renewal of the warming appliances.

These are the best measures as yet known for the treatment of hydrops bronchialis; they are necessarily slow in their action, and I doubt not the day will come when science will show the way to a very much quicker method. In hospital the use of a hot air bath would be, without any demur, a remedy that could be devised. For these advancements, simple as they are, we must submit to wait; doing our best, meanwhile, to acquire the correct knowledge of principles, to act on that knowledge as well as we can, and to push on the development of details to their most advanced perfection.

Ichthyol.

George Foy, F. R. C. S., Surgeon to the Whitworth Hospital, says that Ichthyol (Sulpho-Ichthyolate of Sodium) is a drug which was introduced into England some time since from Germany on account of the favorable results which were obtained from its use in that country in the treatment of various skin lesions, as well as in obstinate forms of rheumatism and its derivatives, neuralgia, tic douloureux, etc. It is prepared from a peculiar mineral oil distilled from fossil fish deposits, and is especially rich in sulphur. It may be employed both internally and externally. For internal application it is given in doses of from 15 to 30 grains daily, dissolved in water or glycerine (one-fifth of these quantities for children). Externally, it is prescribed in aqueous, oily or glycerine solutions (20 to 50 per cent.). It has been favorably reported on by Unna of Hamburg, Hebra of Vienna, Nussbaum of Munich, and others, and is now largely used in special hospitals for diseases of the skin in this country. Its apparent influence over the manifestations of rheumatism will probably secure for it a *clientèle* in so rheumatic a climate as that of Great Britain.—*Medical Press and Circular*, January 25, 1888.

Caffeine in Cardiac Therapeutics.

Dr. James Stewart, Professor of Pharmacology and Therapeutics in McGill University, Montreal, in a communication to the *Canada Med. and Surg. Journal*, February, 1888, upon the present state of cardiac therapeutics, gives the following summary of the usefulness of caffeine:

This is a most valuable agent, and deserves a much more extended use than it has up to the present time received. In order, however, to obtain its full action, it is necessary to give it in much larger doses than is usually prescribed, 10 to 15 grs. in place of 2 or 3 grs. The best salt to prescribe is the natro-salicylate of caffeine. The sodium salicylate dissolves it in chemically equivalent quantities, so that the natro-salicylate of caffeine contains 50 per cent. of caffeine

Caffeine quickly raises the blood-pressure by a direct action of the vasomotor centre. It has also a direct diuretic action. This has been conclusively proved by the very recent researches of von Schröder of Strassburg. He has shown that it has a direct stimulating influence on the epithelium of the

convoluted tubules, and probably also on the epithelium of the glomeruli. It is on this direct diuretic action that the advantages of caffeine depend. Digitalis only acts as a diuretic through increasing the blood-pressure, and on this account it takes from three to four days before its action is manifest. Caffeine, on the other hand, will induce a diuresis within six hours. In cases of paresis of the cardiac muscle, time is all important; before the action of digitalis can be induced precious time is lost. This is the great drawback to the use of digitalis —*i. e.*, time consumed before its action is manifest. Our present knowledge of caffeine may be summed up as follows: It is of marked use in the same class of cases as digitalis. It differs, however, from this drug in the following particulars. It is less powerful as a cardiac tonic, but is a more powerful and prompt diuretic, and for this reason it gives relief quicker from all the troublesome subjective symptoms of cardiac failure. By combining the power of digitalis with the rapidity of action of caffeine, we may obtain the advantages of both drugs, with little of the disadvantages of either.

Notes on Antipyrin and Antifebrin.

Dr. E. Evans in a communication to the *Canada Med. and Surg. Journal*, Feb., 1888, remarks that the following notes may prove of interest, as illustrating not only the anodyne powers of antipyrin and antifebrin in certain painful affections, but also their *curative* powers. It is said that neuralgic affections attacking persons in the period of declining bodily vigor are often severe, lingering, and rebellious to treatment. The following cases occurring at this period yielded readily to one or other of the above drugs:—

Case I.—J. E., farmer, aged 65; had worked hard in harvest field and felt exhausted; complained of pain in right hypochondrium and scanty micturition. Was seen by a doctor, who prescribed rest, a purge, and a mild diuretic mixture. Two days later Dr. Evans found him still suffering severely with pain, but in addition, almost total suppression of urine, and frequent desire to micturate. He was drowsy, had headache, and vomiting. Pulse, 115; temperature, 102.5°. One and a half ounces of urine were drawn off, which was dark; great excess of urates; specific gravity 1.035; only a trace of albumin; no blood or tube casts. Gave him hot bath and pulv. doveri gr. x and pilocarp. gr. $\frac{1}{6}$ (bowels were open), and poulticed the loins. The next day the headache was gone, vomiting ceased, and no frequency of micturition; pulse and temperature normal; urine passes in small quantity and contains no albumin. In three days he was well again, except being very weak. The pain in his side persisted, however, and was very severe. It was confined to the ninth and tenth intercostal spaces (tender points present). Blisters, hypodermics of morphia and atropia, and the use of arsenic failed to give more than temporary relief, and he had to take opium constantly for a month to obtain sleep. Antipyrin grs. v twice daily, was then tried, all other treatment being stopped. He had immediate relief, and in ten days was entirely well.

Case II.—T. M., aged 54, soldier, suffering from intercostal neuralgia (ninth interspace, right side). Pain very severe, intermittent, tender points, ten days' duration. A history of a similar attack fifteen years ago, after severe marching. No rheumatism; no syphilis. A hypodermic (gr. viii) of antipyrin gave immediate

diate relief. Antifebrin gr. vi twice a day was prescribed, and liquor arsenicalis ♏ iii t. i. d. He suffered no pain since, and is now well.

Case III—Mrs. H., aged 48, dorso-lumbar neuralgia; a large fat woman with rheumatic history. She had ill-defined pains in the back and hips for some time, when, after "catching cold," she was suddenly seized with severe pain in the lumbar region, which confined her to bed. Pain much increased by stirring, and radiates over buttocks and into hypogastric region. Tender points in lumbar region, over centre of crista ilii and in hypogastrium. A hypodermatic injection of gr. x of antipyrin stopped the pain, and in ten minutes she could move freely in bed without pain. He left four powders of gr. v antipyrin, and she has not suffered from pain since then.

He has also used these drugs for the pains of locomotor ataxia, (one dose of gr. x antipyrin stopped the gastric pain of ataxia for three months), cervico-brachial neuralgia, painful affections of the fifth nerve, four cases migraine, dysmenorrhœa, gastralgia, intestinal colic, etc. In fact, in almost all cases where formerly morphia was used to relieve pain.

So far he has found antipyrin fail in one case of migrane and in a case of hysterical pain. It seems to possess the advantage over morphia of not deranging the digestion or producing other untoward effects. Smaller doses than those generally prescribed, will, he thinks, be found equally effective, and besides there is little danger of excessive sweating, vomiting or collapse. Antifebrin seems equally as effective as antipyrin to relieve pain. It is about four times as cheap, and the dose is smaller; but it is not so soluble, and is not therefore so suitable for hypodermatic use.

Effects of Antipyrin upon Children suffering from Scarlatina and Acute Bronchitis.

THE result of the experiences of DR. JULIUS FRIEDLAENDER, which appeared in the *Therapeutische Monatshefte* for August last, are translated in *The Therapeutic Gazette*, December 15, 1887. His experiments were on children under six years of age, suffering either with scarlatina or acute bronchitis. The remedy was always willingly taken by the little patients when given in wine or raspberry syrup.

In scarlatina the drug did not seem to have any effect either on the duration of the disease (four to six weeks) or on the accompanying complications, with the exception of catarrh of the air-passages. On this it seemed to have a beneficial effect. This, when treated with antipyrin, was never severe. In every case, after taking the remedy from one to three times in twenty-four hours, in doses of nine grains, the children seemed brighter, ceased gritting their teeth, and gladly took milk, wine, or broth, and were also willing to be freely examined, which had not been the case before. In nearly every case perspiration soon began, was followed by tranquil sleep, and in about two hours the temperature had sunk to about 101° F., the pulse was about 120, respiration easier and not so rapid. These results took place, in some cases, after a single dose of nine grains, but the effects of the drug only lasted from eight to ten hours, according to the patient's age, and the dose had to be repeated once or twice in twenty-four hours. All the fourteen children recovered.

In one case of double suppurative disease of the internal ear, accompanied by extreme restlessness, gritting of the teeth, and twitching of the extremities, and with a temperature of 104° F., the disease being in its third week, the author was able to produce a feeling of comfort, which lasted for twenty-four hours, by means of three nine grain doses of antipyrin, each dose given within thirty minutes of the other.

The patient was a little girl, five years old. These heroic doses were repeated when the violent symptoms of the malady had again been gradually increasing for about twelve hours. The author says that he would have used the remedy again as soon as the feeling of comfort had begun to subside, but was hindered from doing so by the parents of the child, who looked upon the remedy as a "highly dangerous drug," and would not permit of its use until the violent symptoms had again manifested themselves; then they would implore him to administer it again. He would then be forced, "for precaution's sake," to sit by the bedside until full action had taken place, which usually was in about two hours. The child recovered in five weeks after the gradual use of twenty-eight grains of antipyrin. The otorrhœa, however, continued for some ten weeks longer in spite of an energetic use of "Politzer," dry cleansing, and subsequent filling up of the passage with acid. boric. pulv. (although the decomposition of pus was in a measure checked by this treatment), and the little patient, who, during her whole illness, had not spoken a word, and had only seemed to hear slightly when under the full influence of antipyrin, remained deaf and dumb.

Dr. Friedlaender states that his experience with the drug in acute bronchitis of children has been far richer. He confesses that before he definitely settled upon the use of antripyrin he had lost many children with this disease. The duration was usually two or three weeks. Since he has used antipyrin in bronchitis of children, the disease seldom continues over a week. The author says that he must call attention to the fact that antipyrin has only proved of such great value in cases which were marked by a high fever, whereas those cases where the temperature was only moderatedly high, below 102° F., were but slightly affected by the drug. From which it would appear that antipyrin is far more potent in bronchitis, when the catarrh is hindered from loosening by a high temperature.

Another peculiar fact that the author notes is that antipyrin acts far better on well-kept children than on those who are poorly taken care of. Perhaps it is because the children who are well-cared for are better able to stand the weakening accompanying symptoms of antipyrin. Since Dr. Friedlaender has used antipyrin in such cases which are especially suited for its use, viz: when the temperature is over 102° F., and the patient well nourished, all the children (thirty in number) have recovered after only a week's illness. And also among weakly children where the temperature was below 102° F., a careful use of the drug gave very good results, and the author states that he has lost far fewer patients of this class than before using antipyrin.

During a recent murderous epidemic of bronchitis, which raged last winter in the vicinity of the author's labors in Russia, the mortality was fifty per cent. in the cases observed by himself and his colleagues. By the use of antipyrin, however, the mortality of the little sufferers was reduced to 0 per cent.

among the children who came under the first category, while the mortality of the children coming under the second category (the number of which the author cannot exactly give) was, at the very highest, estimated to be only ten per cent.

The author's method of using the remedy is as follows: As soon as apathy is noticed (the temperature being usually then over 103° F.) he at once gives 9 grains to 14 grains of antipyrin in one dose. Doses of 9 grains will be sufficient for children under two years of age, and its effect will last for about twenty hours, while doses of 14 grains in larger children (under five years of age) will only be sufficient for about twelve to fifteen hours; therefore it will be necessary to give the last-named dose twice in twenty-four hours in order to insure the desired effect. Most of the little patients perspire freely after taking the drug, then fall into a gentle and refreshing sleep, from which they awake in one or two hours perfectly bright, and happy and contented. Others, again, will improve more slowly and gradually without either sleeping or perspiring. The cough loosens; breathing becomes easier and less rapid; there is an inclination to play. In addition also the author always orders wine, food which is rich in albumen, gentle aperients, and caffeine.

℞ Caffeinæ puræ,.....gr. iv.
Sod. bicarb.,.....gr. xxiv—xlviii.
Aqu. fœnicul.,.....f℥ ii.
Syr. ipecac.,.....f℥ i.
M. S. One teaspoonful every half hour or every two hours.

In three to five days the change for the better becomes very marked. Although there is a loss of appetite, the child's cough will be much easier, its general appearance brighter, and it will be active and playful.

Usually during convalescence the author continues to give half-doses of antipyrin once a day, or 4⅜ to 7 grains. The children who perspire freely after full doses of the drug usually recover more rapidly than others.

The Antagonism of Drugs.[1]

Dr. Sydney Ringer, in an address delivered before the Midland Medical Society, November 9th, 1887, says, that recent investigations render it probable that alkaloids or extractives formed from food in the gastro-intestinal canal, or from the tissues of the body, cause many of the diseases we are called upon to treat. These alkaloids or extractives arise from physiological or morbid changes, and if in undue quantity, or if not quickly eliminated, they may act like poisons introduced into the system from without. Some of these ptomaines and leucomaines produce effects similar to vegetable alkaloids, as, for instance, atropine, muscarine, or curare. Indeed, muscarine can be obtained, not only from the fungus agaricus, but also from animal tissues. Now muscarine, even in poisonous doses, can be effectually antagonised by atropine.

To-night it will be shown that some inorganic and organic poisons can be completely antagonized, normal function being restored. The study, then, of the antagonisms of poisons becomes of much interest and importanc, as it may be

[1] This lecture was illustrated by experiments on the detached ventricle of the frog's heart placed in a Roy's tonometer, the contractions being recorded on a revolving cylinder.

confidently expected, as the result of further research, that we shall be able to obviate the effects, not only of inorganic and organic alkaloids, etc., introduced into the system, but the effects of ptomaines or leucomaines engendered in the animal body. Probably some of our successes in treatment are already due to our drugs antagonizing these products.

A short time ago an interesting controversy arose regarding the reciprocal antagonism of drugs. On one side it was maintained that drugs might be mutually antagonistic, whilst other observers denied this statement. The former maintained that the effect of a drug might be antagonized by a second drug, which, if increased in quantity, would manifest its own individual effects, but these effects could be removed by increasing the quantity of the first drug. To take an example, atropine will antagonize the action of muscarine, and muscarine the action of atropine on the heart. To take another instance, atropine will antagonize the action of jaborandi on the submaxillary gland, and *vice versâ*; if after atropine has antagonized the action of jaborandi, a further quantity of jaborandi is administered, it will overcome the action of atropine and salivary secretion will return. Rossbach disputed this, and maintained that whilst one drug increases, another depresses or suspends function, and the drug which increases function can never overcome the effect of a drug that has abolished function. He admitted that when atropine arrests the secretion of the sweat-glands, pilocarpine may produce perspiration, but he asserts that this occurs only with a small dose of atropine just sufficient to paralyze the secretory nerves, but not the secretory cells of the gland, and that pilocarpine stimulating the cells may produce perspiration. But he maintains that a larger dose of atropine paralyzes both the secretory nerves and the secretory cells, and after this stage no amount of pilocarpine will excite perspiration.

"I shall show you conclusively that drugs can be reciprocally antagonistic. I shall demonstrate that the effect of a toxic dose of calcium chloride on the detached ventricle of the frog's heart can be quite antagonized by a toxic dose of potassium chloride, and *vice versâ* that a toxic dose of potassium chloride, sufficient not only to arrest spontaneous beats, but sufficient to prevent a strong induction shock exciting any contraction, can be antagonized entirely by a toxic dose of calcium chloride, and by the careful apportionment of the two salts their antagonism can be so nicely balanced, that the ventricle will beat spontaneously and quite naturally. Moreover, I shall show that a toxic dose of potassium chloride will antagonize a toxic dose of veratria, and *vice versâ* a toxic dose of veratria will antagonize a toxic dose of potassium chloride, and these two substances may be given with such equipoise as completely to antagonize each other, so that the ventricle will beat quite naturally and spontaneously. So that in the case of calcium chloride and potassium chloride, and again in the case of veratria and potassium chloride, we may have in the circulating fluid two of each series present in tonic doses without either poison exerting any apparent influence on the ventricle, which goes on beating spontaneously and normally, but if one salt were administered singly it would powerfully affect the functions of the ventricle to an extent incompatible with life. Concerning the antagonisms to which I wish to draw your attention to-night, I will refer first to a physiological antagonism. If the ventricle of the frog, or of the eel, or of the tortoise, is fed with saline

solution (.66 per cent.), contractility soon ceases, and cannot be induced by a strong electric shock. On the addition of a lime salt, even in very minute proportions, as 1 part of lime-salt to 10,000 parts of saline solution, contractility immediately returns, but the contraction is abnormal, for the dilatation of the ventricle is greatly prolonged, so that the whole contraction lasts much longer than natural. The addition of a small quantity of a potassium salt, as for instance, potassium chloride, 1 part in 15,000 of circulating fluid, obviates this effect of the calcium salt, accelerates dilatation, and induces a perfectly normal beat, and with such a solution good contractions are sustained for several hours. Here, then, we have an antagonism between lime and potassium salts, affecting, however, only one part of a contraction—namely, the relaxation of the contracted muscle."

Not only are the salts of these two substances—potassium and calcium—antagonistic in physiological doses, but they are likewise antagonistic in toxic quantities.

If to a solution capable of sustaining the ventricular contractions is added a toxic dose of potassium chloride, the contractions speedily cease, even when the ventricle is strongly stimulated. Now, on adding a toxic dose of calcium salt, the potassium chloride is antagonized, and if the calcium salt is added in suitable quantity, complete contractility is restored, and the ventricle beats spontaneously and normally, and *vice versâ*; if there is added to the circulating fluid a toxic dose of calcium chloride, the duration of the contraction is greatly prolonged and relaxation is especially retarded, but on the addition of a toxic dose of a potassium salt, these lime effects are obviated, and normal spontaneous contractions ensue.

Here, then, are instances where two substances in toxic doses so antagonize each other that natural beats occur; whilst either substance, added alone to the circulating fluid, pewerfully affects the functions of ventricle to an extent incompatible with life. During a contraction, four distinct set of changes occur in the muscular tissue of the ventricle, namely, changes occurring during the latent period, during the period of contraction, during the period of relaxation, and reparative changes, independent of those permitting relaxation. Now potash salts, like veratria salts, greatly retard these reparative changes, so that in a ventricle poisoned by potassium chloride, these reparative changes are very slowly performed, and hence, after the completion of contraction and relaxation, if a subsequent contraction is soon induced it is a very weak one, or if the stimulus is too soon applied to the ventricle no contraction may occur, and cannot be induced till a short time has elapsed, and then the amount of contraction depends on the length of the diastolic pause. This effect of potassium chloride on the reparative changes a calcium salt completely obviates.

It is seen, then, that a potassium salt accelerates relaxation but retards reparation, in both these respects being antagonized by a calcium salt, and *vice versâ*. Another antagonism between potassium and calcium salts still remains to be noticed. If a ventricle be allowed to remain without contracting from a few seconds to a minute, then, on exciting it the first contraction is weak, and the subsequent contractions grow gradually stronger till normal contractions occur. This staircase character of beats depends on the action of the potassium salt in the circulating fluid, and the degree in which it occurs is in proportion to

the relative amount of potassium chloride in the circulating fluid. A calcium salt, as calcium chloride, quite obviates this effect. If sufficient calcium chloride be added, no matter how long the ventricle remains without contracting, the staircase character of the beats is prevented, or is very slight indeed. Strange as it may appear, veratria affects the ventricle much after the manner of lime salts. Thus, added to simple saline solution, it will restore contractility, and further, like lime, it greatly prolongs the duration of the contraction, and especially delays relaxation of the contracted ventricle, and, like lime and potassium salts, found veratria and potassium salts are to be reciprocally antagonistic. For instance, the addition of veratria to the circulating fluid produces either great irregularity in the contractions, or very great delay in dilatation, according to the temperature of the room. This irregularity a toxic dose of potassium quite removes, and good spontaneous contractions return. Further, if the ventricle is greatly weakened or arrested by adding a toxic dose of potassium chloride, veratria quite antagonizes the potassium chloride effects, and restores spontaneous and normal contractions.

Barium and calcium salts, as might be expected from their chemical relationship, have many actions in common. It is interesting to observe that, although lime salts and barium salts both broaden the beat, causing fusion and contractions, barium salts effect this more powerfully than calcium salts; yet, after barium has produced its effects, on the addition of a calcium salt, instead of obtaining the sum of their united action the effects common to both salts become less. In other words, lime takes possession of the muscular tissue, excluding the action of the barium salts. It would appear, then, that two substances affecting the same tissue in the same way, when administered therapeutically, one will not necessarily intensify the action of the other, but may replace the other, and we get the action of only one substance, and this, whilst having a greater affinity for the tissue, may induce a less physiological effect. Dr. Ringer says these results are very interesting, and ventures to think they have considerable importance, both physiologically and therapeutically. Thus we have seen that barium and calcium both exert an influence in the same direction, but the barium molecule is the more active in respect of its influence on the ventricular contraction. If, however, we bring both molecules into action simultaneously, we see that the resultant effect, instead of being greater than with either component, is less, the lime displacing the barium and inducing its less physiological disturbance. The relation of this subject to practical medicine is very clear and important, for on the question of the combination of drugs we must remember that the joint action of two drugs functionally similar is not necessarily greater than that of either separately, and may be even weaker than one of them given separately. He uses the word necessarily, for in some instances two substances having the same action do increase the action of either separately, so that we get the sum of their joint action. This is the case with lime and veratria.

So far we have seen that substances may be antagonistic in two ways. The first we may term physiological, for instance, where two substances inducing an opposite physiological effect on a tissue may be so adjusted that the poisonous action of both is prevented. In the other case the antagonism is probably chemical, and one substance may by a stronger chemical affinity displace another

poison, and this may occur, and indeed is most likely to occur, when both substances are chemically related and have a similar physiological effect. But there are other ways in which a substance may act as an antidote.

A lime salt in the circulating fluid we have seen is necessary for the contraction of cardiac muscle. Now, a soluble oxalate destroys function, in part, by combining with the lime in the circulation, and rendering it insoluble and so inoperative. Here, then, we obviate the poisonous effect of an oxalate by adding lime to the circulation. There are still, however, other ways in which we can antidote a poison. A soluble oxalate not only destroys function by withdrawing lime, but is directly to some extent poisonous to the cardiac muscular tissue; and this poisonous action we obviate by the administration of a lime salt, which combines with the oxalic acid, forming an insoluble and therefore inoperative compound. To take another instance, soluble barium salts are poisonous to the cardiac muscle and arrest the ventricle in systole. Now, the author has found that the addition to the circulating fluid of a solution of sulphate of soda will precipitate the whole of the barium, and the ventricle will speedily resume its normal contractility, even though the contractions had been suspended for an hour. The effect of the sodium sulphate is very rapid. Barium salts, one would think, can prove poisonous only to the tissues after more than enough has been absorbed to combine with the whole of the sulphuric acid in the blood and tissues, and it is possible that part of the action of a barium salt may be due to the withdrawal of sulphuric acid from the tissues.

Finally, there is another way by which the poisonous action of some substances can be greatly lessened. Some poisons prevent the changes which take place in the exercise of a function, as, for instance, the contraction of muscle. They do not destroy the structure, they only suspend function, and this power they possess only when the poison reaches a certain percentage of the circulating fluid. If the fluid is diluted, then the percentage amount becoming less the poisonous action is greatly reduced. This is the case with potassium and most other salts. This fact probably explains the effect of bleeding, which has been successfully employed in some cases of poisoning, and is highly sucessful in uræmia. The loss of blood induces a rapid absorption of the intercellular fluid and water from the gastro-intestinal canal, and so diluting the poison, lessens or removes the symptoms. If bleeding proves unsuccessful the influence of dilution suggests transfusion of a saline solution, also the free administration of liquids by the stomach—methods which the author long ago suggested.—*British Medical Journal*, Nov. 12, 1887.

The Uses of Nitro-Glycerin.

The value of nitro-glycerin in medicine is now generally appreciated. It is, however, important that we should be thoroughly acquainted with its properties. Its action in dilating the arteries is of great value, since it not only affects the large and also smaller arteries, but even the capillaries. We might regard its actions in a two-fold light; first, it enlarges the arteries which have been contracted, and so transfuses the blood into these almost bloodless vessels; second, in doing so it relieves those vessels which have been surcharged with blood, and thus its action might be compared with that of bleeding.

Nitro-glycerin is useful in angina pectoris, neuralgia, and the like; also in sea-sickness, fainting fits, palpitation, etc. As these ailments all occur in paroxysms, the object in using the drug is to give immediate relief. Its continued use will be found of service in Bright's disease, fatty degeneration of the heart, etc., and in all similar ailments where symptoms of an irregular distribution of the blood are apparent.

Dr. Trussewitsch, in an article on the subject in the *Centralblatt für die gesammte Therapie*, says that the best way to judge the size of the proper dose is by carefully watching its effect on the pulse. He states that the more contracted the radial artery is the sooner it will dilate under the drug, and the accompanying effects will be good; the fuller the pulse the less effect nitro-glycerin seems to have; and the weaker and more yielding the pulse the easier it will be to cause an undue and general effect on the whole organism.

Therefore, in cases of the first mentioned kind, normal doses, (that is, not more than one drop of a one per cent. solution) will be all that is needed. In the second kind, one may give even as much as two drops with safety, not, however, without first having tried the effect of the normal dose. In cases of the third kind only one-quarter or one-half drop may be given at first, so as to avert the disagreeable symptoms which might be caused by a "hyperdosis."

These rules, of course, apply only to those who have not been using the drug habitually, and in weak, nervous, poor-blooded, and timid patients it is always advisable to begin with very small doses.

Dr. Trussewitsch further says that organic heart trouble does not, by any means, contra-indicate its use, he having used it with good results in angina pectoris, which was complicated by valvular trouble and dilatation of the aorta; also in cases where the heart was enlarged. The greatest caution, however, must be taken when giving the drug where there is general atheromatosis of the arteries. Under no circumstances should the dose ever be increased above two drops of the one per cent. solution, and even in angina pectoris the increase of dose must be very gradual. If in long-standing cases, one begins to find even the increased dose losing its effect, it will be well to discontinue its use for two weeks or so, at the end of which time the normal dose will be found to have its original effect again. This peculiarity of nitro-glycerin is of great importance, since, even when its use becomes habitual, any undue increase of dose will be found unnecessary.

The best methods for administering the drug are either to drop the solution on the tongue by means of a pipette, or else to have it put up in small tablets of chocolate. The practice of giving it in water is not advised, as it gives bad therapeutic results.

The author also finds that it combines well with other remedies. In combination with digitalis it acts well on patients with weak and irregular heart-action, with cocaine or morphine for neuralgia, and sometimes even with nitrate of amyl in angina pectoris. The drug should be perfectly pure, as when it is poorly prepared it is utterly worthless.—*Therapeutic Gazette*, Nov. 15, 1887.

Iodide of Potash in Diphtheria.

DR. AD. DUMAS, in the *Bulletin général de Thérap.*, says that there is no remedy for fully-developed diphtheria, and therefore, it is necessary to check the disease in its incipiency. When healthy children are living near others suffering from diphtheria, they are naturally in danger of contracting it themselves. Therefore the greatest watchfulness is necessary, so as to be able to cope with the enemy at his first appearance. Dr. Dumas states that he considers it advisable to treat a child antiseptically even before there is any appearance of the disease. He advises a one per cent. solution of iodide of potassium with eight drops of tincture of iodine to be given daily; also in the night, disturbing as little as possible the sleep of the child. This treatment should be continued for about a week. His experience is but limited, he having based his conclusions as to the value of this preventive upon the observation of only nine cases.—*Therapeutic Gazette*, Nov. 15, 1887.

Carbolic Acid in Trachoma.

STARTING from the supposition that trachoma is caused by a specific microbe (as was first pointed out by Sattler; and later on supported by independent researches of Michel of Wurzburg, and E. E. Schmidt, of St. Petersburg; see the *London Medical Record*, April, 1887, p. 166), Dr. J. SHTCHEPKIN, of Krasnoüfimsk, has attempted (*Vratch*, No. 42, 1886, p. 749) to destroy the pathogenic agent by means of injecting into the palprebral mucous membrane two or three drops of a 2 per cent. solution of carbolic acid. Seven successive cases of follicular trachoma were treated by him after that plan. In all of them, after two or three injections (repeated at intervals from three to twenty-two days), a complete and radical cure was obtained, trachomatous grains, however large, tracelessly disappearing in the course of a few weeks. Since the carbolic injection is painful, a 2 per cent. solution of cocaine should be instilled into the eye about five or ten minutes before the operation. Lachrymation and redness caused by the latter disappear spontaneously in ten or twenty minutes. Dr. Shtchepkin's successful results induced Dr. E. P. Serebrennikova, a lady doctor attached to the Permgubernskaia Zemskaia Infirmary, to try so simple a method in nine trachomatous cases of her own. As may be gathered from her short communication in the *Vratch*, No. 32, 1887, p. 614, she is far from being prepared to support his statements. Follicles disappeared in only one of her cases—in that of a recent trachoma in an official of 24, where the carbolic injection had given rise to intense local inflammation. Even in this case the successful result is attributed by the author to the inflammatory process, and not to a specific (antibacterial) action of the drug. In the remaining cases, the injection produced a more or less considerable œdema and other inflammatory phenomena, which in two cases attacked also the cornea and intensified already existing pannus. After the reactive irritation had been allayed, the conjunctiva was found to be in a morbid state exactly identical with that before the treatment. Hence the author gave up any further experimenting in that direction. It is just possible that such a striking difference between the result of the two authors might, at least partly, depend upon a difference in the procedures respectively adopted. While Dr. Shtchepkin lays great stress upon injecting into the most superficial layers

of the mucous membrane ("it is the most essential condition," he says, "therein the operator's whole skill consists"), Dr. Serebrennikova seemingly always injected into the submucous cellular tissue.—*British Medical Journal*, Nov. 12, 1887.

The Effect of Camphor on the Salivary Glands.

Dr. L. E. MAIRE, in a communication to the *American Lancet*, January, 1888, says that the influence of camphor on the mammary glands is a well-known and established fact in obstetric practice, lessening the secretion of milk, probably by diminishing the flow of blood to the glands, but the effect of camphor on the salivary glands is not so generally known, and for that reason he calls the attention of the profession to the following observations.

Trousseau in his treatise on Therapeutics, mentions the fact that camphor, when taken with the preparation of mercury, lessens their antivenereal power, and also the salivation. This is the only reference to this peculiar effect of camphor on the salivary glands that the author has been able to discover in any work on materia medica or therapeutics which he has consulted.

Illustrative of this peculiar action he relates the following case: On March 1st, 1885, Mr. D. who had been drinking rather too freely, became engaged in an altercation with companions. This resulted in his being struck with a beer glass on the left side of the face, causing an ugly gash, severing the transverse facial artery, also Steno's duct of left parotid gland. He bled profusely at the time of the injury. When first seen on March 5, five days after the injury, there was eversion of the wound, which was granulating; and coursing down the cheek from a small opening in the wound was quite a stream of saliva; in other words a salivary fistula existed. This was so profuse as to keep his shirt and coat constantly saturated. Scarcely any viscidity was noticed in this secretion of the parotid glands, while the secretion of the submaxillary glands was more viscid, that from the sublingual gland was quite viscid, while that from the muciparous glandules of the cavity of the mouth consisted almost entirely of viscid substance. There was also considerable swelling of the tissues around the wound.

He was ordered to move the jaws as little as possible, and a local application of ungt. champhoræ, made by dissolving gum camphor in hot cosmoline in the proportion of one-half drachm to one ounce.

Instead of getting this at the drug store, he was given a carbolated ointment to use topically, which he did all next day. On the night of the sixth, the saliva ceased to flow, but the cheek became enormously swollen, so much so as to prevent the passage of saliva through Steno's duct. This condition of affairs continued until the evening of the seventh, when the author was called to see him, and ordered the camphor ointment to be applied until he should call again. The next day the patient reported that shortly after applying the camphor ointment the swelling began to decrease, and a slight discharge of the saliva made its appearance. This was succeeded by a great reduction of the swelling. He was then ordered fluid food, so as not to necessitate moving the jaws, as this always increased the flow of saliva. The camphor was also continued.

On the next day the swollen gland and cheek had been reduced considerably, and the swelling had totally disappeared. Very little saliva was escaping

from the fistulous orifice. The wound had all the appearance of closing very soon, which it did on the next day. Cases of salivary fistula are usually cases calling for surgical treatment. Still, cases have been successfully cured by medicinal treatment. The method of checking the secretion is to be preferred to plugging up the orifice by means of plasters.

Some Practical Points in Therapeutics.

THE London correspondent of the *Canada Lancet*, Jan. 1888, says that during the past year Dr. Oliver has had marked success at the hospital for women, Soho Square, in the treatment of uterine displacements by means of vaginal medication, having discarded the use of pessaries in all cases except those of extreme prolapsus, in which the original walls are past all hope of being restored to their normal tone. He claims that the absorbent power of the mucous membrane of the vagina has been too long ignored, and points out that the method of administration of remedies by vaginal suppositories is especially beneficial in pelvic derangements. In cases of retroversions, retroflexion, anteversion, anteflexion, and recent or partial prolapsus, no method or replacement is adopted, the following suppository being relied upon entirely:

Quin. hydrochlorate	gr. iij.
Digitalin	gr. $\frac{1}{60}$.
Strychnia	gr. $\frac{1}{32}$.
Glycerine jelly	q. s.

Sig.—One to be used every night, per vaginam, followed in the morning by a warm vaginal injection; in bad cases two suppositories daily are used. In the great majority of cases, the distressing symptoms common in these conditions have been speedily relieved and the uterus has recovered its normal tone, and in many its position.

In cases of climacteric diabetes, etc., at the same hospital, the following pill is used with marked success:

℞.—Codeiæ	gr. $\frac{1}{4}$.
Conf. rosæ	q. s.

Sig.—One to be taken three times daily.

In troublesome cases of severe pruritus of the vagina, the following gave relief after other remedies had failed:

Cocaine	grs. x.
Chloral	grs. xij.
Glycerine	f℥j.

Sig.—To be applied three or four times daily.

In cases of general fibroid change of the uterus, the following is prescribed with beneficial results:

℞.—Ext. ergotæ fl.,	
Tr. ferri perchlor.,	
Spir. chloroformi	āā ♏ x
Aquæ ad	f℥j.

Sig.—To be taken every four hours.

In cases of plastic pelvic peritonitis, the following, together with warm vaginal injections, has proved to be a very effective treatment:

℞.—Calcii chloridi..... gr. x.
Glycerini ..... fʒss.
Infus. quassiæ..... fʒj.

Sig.—To be taken three times daily.

Iodol is becoming more largely used in several of the hospitals in London, and is found to be an effective substitute for iodoform, having the additional advantages of being nearly odorless, tasteless, producing no constitutional effects, and of containing almost as large a percentage of iodine, which it parts with more freely. It has proved to be antiseptic, anæsthetic, a promoter of granulation and healing, checking suppuration and deodorizing foul secretions—in fact, it possesses all the therapeutical virtues of iodoform, without its unpleasant drawbacks. The author says he has seen it used with prompt benefit in cases of atonic, syphilitic, and corneal ulcerations, and other purulent conditions. It is an especially useful application in throat affections, such as phthisical laryngitis, and other ulcerations of the inter-arytenoid fold, the vocal cords ventricular bands, and in almost all laryngeal, pharyngeal, nasal and aural cases where a catarrhal or ulcerative condition exists. Daily or tri-weekly insufflations of the pure powder of iodol may be used, freely covering the diseased surfaces. The best brush application is the following: Iodol, 1 part; alcohol, 16 parts, and glycerine, 34 parts; while the best for use as a spray is as follows: Iodol, 1 drachm; ether, 1 ounce. This makes a light brownish mixture, the ether of which evaporates quickly, leaving the iodol upon the affected surface. In all cases, it is, of course, essential to first thoroughly cleanse the diseased surfaces, and for this purpose the following lotion is the most useful:

℞.—Sodæ bicarb..... gr. xv.
Acidi carbol..... gr. jss.
Aquæ..... fʒj.

Iodol pastilles, consisting of iodol, 1 grain; glycerine, 1 minim, and glycogelatine, 18 grains, are very beneficial in chronic pharyngeal affections.

Administration of Nitro-glycerin in Migraine and other Headaches.

Dr. Jacob Trussewitsch, of St. Petersburg, recommends nitro-glycerin in the *Allgemeine med. Central-Zeitung*, as a quick and certain remedy in every kind of headache, which is due purely to nervous narrowing of the vessels. He gives one drop daily for the first three days, then every three days one drop more. Besides this drug, which should be used against the attacks, and to obtain dilatation of the vessels, the author gives tonics, such as iron, arsenic and quinine in small doses. Headaches occuring paroxysmally, with a more or less of a high degree of pallor, are influenced best by nitro-glycerin. Nervous hyperæmic headaches are much less influenced. It is directly harmful in old passive hyperæmic conditions of the brain.—*Deutsche Medizinal-Zeitung*, October 31, 1887.

Aconitine in Syphilitic Headaches.

Leroy reports to the *Annales de Dermat. et de Syph.*, that he has found aconitine very successful in the intense and obstinate headaches which occur in

syphilis. One sixty-fifth of a grain was given twice daily in pill form. In the eleven cases which are reported, the drug was kept up from three to thirty days. As a rule, the pain completely subsides after five to eight days. The action of the remedy was particularly striking in two cases in which other drugs, especially iodide of potash, had been employed before. In certain cases in which there were probably profound changes in the brain or membranes, aconite also entirely failed.

Poisoning with Hyoscyamin.

Dr. A. J. Johnson reports a case of poisoning with hyoscyamin, and concludes his paper with the following summary:

1. That poisoning by hyoscamin resembles, and may be easily mistaken for, poisoning by atropine.

2. That hyoscamin is identical with "light atropine," "light daturine," and "duboisine."

3. That there are various preparations known as "hyoscyamin."

4. That these preparations differ exceedingly in their strength.

5. That there is a pure alkaloid hyoscyamin which should not be given, at first in more than 1-100 of a grain doses, and—

6. That there is a resinoid hyoscyamin, commonly dispensed as "hyoscyamin," which may be given in doses of $\frac{1}{4}$ to one grain.

7. That it is advisable for the safety of our patients, when prescribing hyoscyamin, to name the manufacturer whose drug we wish used.—*Canadian Practitioner*, January, 1888.

Sulphide of Calcium in Pulmonary Phthisis.

Dr. C. B. Witherle, of St. Paul, Minn., calls attention in the *Medical Record*, January 7, 1888, to the use of sulphide of calcium in pulmonary phthisis. His experience, though not extensive, leads him to think it of value. He has noticed improvement in nearly every case. In advanced cases this improvement has been only temporary. In two cases of commencing phthisis (one of three, one of six months' duration) there has been an entire cessation of morbid symptoms. He has also found the drug effective in several cases of obstinate cough, in which no pulmonary lesion was determined.

He begins with one-half grain in pill every two hours, increasing the dose until disagreeable symptoms (usually eructations of gas) are produced. One grain every two hours is the usual amount that can finally be taken without discomfort. There is good evidence, he says, that sulphuretted hydrogen, or some compound of it, is absorbed into the blood when sulphide of calcium is administered, and this method has none of the disadvantages or dangers of the Bergeon treatment. He professes to hold no theory as to the action of sulphuretted hydrogen upon the bacillus tuberculosis. If it has such action, it appears probable that it is by interfering with some nutritive condition of the bacillus peculiar to its existence within the body-tissues, and not as a direct germicide.

The idea of using sulphide of calcium was naturally suggested to him by the Bergeon treatment, and by the established use of the sulphides in certain suppurative diseases. No doubt the same idea has occurred to others. He has, however, seen no suggestion of the method of treatment that he has used, and therefore deems it worth while to lay his results, limited as they are, before the medical public.

Menthol in Laryngeal and Pulmonary Phthisis, and in other Diseases.

ALBERT J. BEEHAG, Clinical Assistant, Ear and Throat Department, Royal Infirmary, Edinburgh, contributes the following paper on this subject, to the *Edinburgh Medical Journal*, January, 1888.

It is now nearly two years since A. Rosenberg, of Berlin, brought before the notice of the *Berliner Medicin. Gesellschaft*, his menthol treatment in connection with pulmonary and laryngeal phthisis, and in a paper read before the same Society, on April 6, 1887, he further established his former statements from the results of his more extended clinical experience since that date. A twenty per cent. solution of menthol in olive oil is the strength generally employed. Olive oil may be made to take up more than twenty per cent. on heating, but the menthol will recrystallize when exposed to the cold, and the mixture form a solid mass.[1] Slightly warming will cause it to redissolve, and in this manner we can use the drug in a highly concentrated form. The syringe devised by myself, and made by Gardner, of Edinburgh, serves for injecting the fluid both into the larynx when it is the seat of the disease, and into the trachea when the lung only is affected. It is better, especially when the disease is localized in the larynx, to make at each sitting two or three injections, of about fifteen minims in each, directly on to the part affected. By this means more prolonged contact of the agent with the diseased tissues is secured.

After each injection, which ought, of course, to be made under the guidance of the laryngeal mirror, the patient should be made to take deep inspirations, whereby the cooling and anæsthetic effect produced by the menthol is accelerated. No danger whatever results from such an endolaryngeal or endotracheal method of treatment, and no untoward or disagreeable effects follow the introduction of such large and concentrated solutions of menthol into the system. The patient at first feels a slight burning sensation in the larynx, which is quickly replaced by a cool pleasant feeling, and in a few moments a warm sensation is experienced all over the chest, due to the solution finding its way into the lungs, which it does, according to Reichert's experiments of a series of twelve endotracheal injections on calves and sheep, even to the finest bronchioles. The injections should be performed once or twice daily for about two months, and the treatment by injections should be combined with inhalations of five minims or as much as the patient can bear, of the same solution in a pint of steaming water, if possible at first every hour during the day. Also a convenient method and one which is employed by Dr. M'Bride in the Infirmary, is to drop some of the solution of menthol on to a piece of cotton wool, and make the patient wear the same frequently before the mouth and nose. The patient sometimes finds it more convenient to sleep with this on.

Menthol possesses in a marked degree the anæsthetic action of the oxyhydrocarbons of the volatile oils. A few minutes after its application, pain and other uneasy sensations in the larynx disappear, and that *bête noir* in laryngeal phthisis, viz.: dysphagia, is combated to such an extent, that the patient is at once enabled to eat without pain. The effect of this is readily appreciated.

[1] In a 25 per cent. solution the menthol begins to crystalize out when the temperature is reduced to 55° F.

Nutritious foods can be at once taken into the system, and the general health of the patient thereby improved. With regard to the anæsthesia produced by menthol, Rosenberg has pointed out a very interesting fact, viz.: its cumulative effect. "After the first injection," says Rosenberg, "the anæsthesia lasts from one to three hours, after the second or third, still longer, so that after a week the effect lasts for a whole day."

The antiseptic properties of menthol also are very marked, as has been experimentally proved by Koch and other observers upon various forms of bacteria. Rosenberg has demonstrated its destructive effects upon tubercle bacilli, by subjecting pure cultivations of this micro-organism to menthol in a gaseous form.

Shortly after the beginning of the treatment, an improvement in the condition of the patient can be seen. If the larynx be the seat of the disease, one notices that the abnormal secretion is much diminished, and its whole surface becomes much cleaner and healthier. This is also shared by the ulcers, which finally heal, leaving beautiful smooth cicatrices, better than one sees after the use of lactic acid. But there are certain cases which do not yield to this treatment so readily, and these are marked infiltrations and tumefactions. These yield better to the application of lactic acid, but even here the resistance to treatment is great, but is accelerated by first curetting the infiltration with Hering's laryngeal curette, and afterwards by the employment of menthol or lactic acid, or of both. I say both, because menthol is a very useful adjuvant in the lactic acid treatment (introduced by Krause), where it should be injected two or three minutes before the application of the acid. By this method a quicker result is obtained, for even by itself the lactic acid brings about quicker cicatrization of the ulcers. But there are certain advantages which menthol has over lactic acid. The former, if injected carefully and precisely with the laryngeal syringe, and not applied with a brush, which causes pain, is certainly not unpleasant to the patient in its application, and when the subjective symptoms in the larynx are subdued some few minutes afterwards, the patient's spirits are raised, and the appetite at once manifests itself, especially if dysphagia were a symptom—so that the patient, as I have repeatedly seen, gets to enjoy the treatment. In the case of the lactic acid, where one must apply the remedy accurately and vigorously for a few seconds to the affected part—best done by means of a piece of cotton wool affixed to Krause's Kehlkopfpincette, or to Hering's laryngeal Tamponträger—one can readily understand that such vigorous treatment is not at all unaccompanied by pain, though its severity in many cases is not so great as one would expect. As for the patient losing flesh during the lactic acid treatment, which has been asserted by some, I must say that such has not been my expertence, and I have had a large one in Krause's clinique in Berlin. What appears to me to be a very important advantage in the menthol over the lactic acid, is that in the former the medicament is not confined to one spot, but extends over a large surface, viz.: the whole of the larynx, trachea, etc. A case in point will illustrate the fact. At the congress of the Society of Naturalists and Physicians, held at Berlin, in 1886, Hering of Warsaw, produced a larynx to show that he had cured a laryngeal ulceration by the use of lactic acid. In other parts of the same larynx suspicious points were observed and pointed out by Professor

Chiari, of Prague, as being probably tubercular, and such indeed they were proved to be on subsequent microscopical examination by Virchow. Certainly, the tubercular ulcer had been healed in this case, but the tubercular disease had not been wholly exterminated from the larynx.

Besides improvement and cure in the laryngeal condition, one sees a similar result in the pulmonary condition, if the patient come early enough under treatment. Directly after the injection the patient experiences a remarkable lightness and freeness in the breathing. The sputa, during the course of the treatment, gradually lose their nummular character, become less and less purulent, and finally disappear. There is a marked diminution in the cough and an improvement in the voice. The night-sweats diminish, the bodily weight increases, and the system generally is improved. Rosenberg relates the very interesting case of a patient affected with both pulmonary and laryngeal phthisis in its early stage, who was treated by him with menthol. The morbid processes here had cleared up to such an extent that the patient was enabled to "pass" the ordinary examination for life insurance at the hands of a well-known expert of a life insurance company. (Manifestly the rules of the insurance companies in Germany are not the same as in Great Britian, where the applicant is required to enumerate previous illnesses.)

I can give an unqualified confirmation of the good results from Rosenberg's method of treatment, since, through his kindness, I have treated many of his patients, and watched his results for many months. One should not give up the treatment too early, though later the applications may be made less frequently. Of course it is not pretended that very confirmed cases of phthisis can be cured by this method of treatment, but its employment here relieves many of the distressing symptoms. The sputum is more easily expectorated, the coughing much alleviated, and the morbid processes for a time retarded.

With the object of securing more prolonged contact with the diseased tissues in phthisis laryngea when there is much secretion present, I have introduced a powder to be insufflated alternately with the injections. The formula is as follows:—

℞ Menthol.....3ss.
Ammon. chlor.....3iss
Pulv. acid. boric.....3j. M.

The same powder, when pulverized very finely, will be found to be very useful in chronic laryngeal catarrh, and the after sensations are not so unpleasant as those which follow upon the insufflation of ordinary powders.

In the form of snuff, a pinch of it may be taken frequently into the nostrils for acute and chronic nasal catarrh, and will be found to cause a great diminution in the muco-purulent secretion, and to relieve headache and neuralgia attendant upon the condition. Directly after it is taken, a flow of watery mucus is induced, and thereafter the nose remains cool and free.

The marked antiseptic properties of this snuff, and its power of causing a copious watery secretion, led me to use it in ozæna, and the results obtained have been very satisfactory. The horrible fœtor is quickly removed, and the frontal headaches disappear. The nose becomes freed from crusts, and its mucous membrane will be seen to be in a moist condition and of a more healthy aspect. The

snuff here should be taken frequently—from twelve to twenty times daily—and the secretion which follows its use should be retained in the nose, with the object of softening the crusts and rendering their expulsion easy. If they have been previously expelled, this precaution will prevent their reappearance. The patient should also be enjoined to draw the powder back through the nose into the mouth, with the object of reaching the crusts in the naso-pharynx, and of relieving the dysphagia and hawking due to the concomitant pharyngitis sicca. If, by way of experiment, some of the powder be insufflated into the naso-pharynx, the pharynx, which was previously dry and shining, will now be seen to be bathed with a copious moist secretion.

Menthol is a vascular stimulant, and quickly reduces swelling of the swollen nasal mucous membrane. It also possesses the power of what Jelineck pointed out with regard to cocaine, viz.: of reducing erectile swellings of the nose—mostly situated on the inferior turbinated bones where the cavernous spaces are the largest—by emptying the cavernous tissue of its blood. Thus menthol is indicated in those cases of nasal obstruction due to these causes, and will be found to be extremely useful in chronic rhinitis associated with a muco-purulent secretion most commonly met with in scrofulous children. A short time ago a woman came to me with a child five months old, complaining of its inability to sleep and suck properly through the "snuffles." The other members of the family showed distinct evidences of syphilis, and the child itself was being treated for the same disease by the family physician. On examination I diagnosed the case to be syphilitic rhinitis in the first stage, and ordered the interior of the nose to be painted with a 5 per cent. solution of menthol in olive oil. The effect was immediate. The child could suck with ease, slept soundly, and showed other signs of general improvement. The importance of rendering the nasal passages clear in sucklings, whether the obstruction be due to syphilitic or ordinary catarrh, is paramount.

Menthol has a decided action in relieving the pain and swelling in acute catarrhal angina. A 25 per cent. solution of it in olive oil should be copiously applied to the pharynx by means of a large soft brush. The pain and dysphagia are removed, the patient is enabled to secure sleep, the severity of the disease is mitigated, and the convalescence quickly sets in. In some cases the subsidence of the swollen and inflamed tonsils has been remarkable, without any abscess formation. If there is acute rhinitis accompanying the disease, the solution should be painted into the nostrils also, the strength of the solutions I use for this purpose being from 5 to 20 per cent., according to the age of the patient.

In cases of chronic pharyngitis with hyperæsthesia or paræsthesia I use the well-known Mandl's formula with menthol superadded, the prescription being as follows:—

℞ Iodi,.....gr. vj.
Potas. iod.,.....gr. xx.
Aquæ,.....ʒ iij.
Menthol,.....ʒ iss.
Glycerini,.....ʒvj. M.

The menthol, which should be powdered very finely, is for the most part here suspended in a fine state of division, and the mixture requires to be shaken occasionally.

As might be expected from the action of menthol in other forms of neuralgia, I have found it to give relief in otalgia by dropping strong solutions of it in olive oil into the ear. In those cases of acute middle ear catarrh, which are associated with an inflammatory condition of the naso-pharynx, I have found painting the vault of the pharynx with a menthol solution to cut the attack short. Some of the vapour of the menthol also enters the Eustachian tubes and middle-ears, and exerts a beneficial influence in allaying the inflammation in these latter situations.

Diuretic action of Caffein and of Substances belonging to the same Group.

Von Schroeder, in *Arch. f. exp. Path. und Pharm.*, XXIV. p. 85, has published an account of some experiments which led him to the conclusion that caffein influences the kidneys in two ways: (1) it stimulates the secreting tissue; and (2), it contracts the renal vessels, owing to the effect it has on the vaso-motor centre. In virtue of its action on the secreting tissue, he says, it is a powerful diuretic, but the contraction it produces in the renal vessels tends to limit and sometimes annuls its diuretic effects. An abstract of this paper will be found in the *Medical Chronicle* for January, 1887. In the present paper he records the results of investigations made to determine whether it may not be possible to antagonize the influence of caffein on renal vessels, without interfering with its property of stimulating the secreting tissue, by combining it with some other drug. He also gives details of experiments on the diuretic properties of substances chemically closely allied to caffein.

It is well-known, he says, that many substances exert an influence on the vaso-motor centre, and therefore on the renal vessels, exactly opposite to caffein. Chloral hydrate, for example, does this, and in the rabbit it has been found powerfully to aid the diuretic effect of caffein. But chloral depresses the heart's action, and von Schroeder has therefore tried urethan and paraldehyde, both of which to some extent depress the vaso-motor centre, and therefore antagonize the action of caffein on vessels. Urethan, he finds, is not sufficiently powerful, but by giving paraldehyde and caffein in combination, he has got promising results. He ascertained by experiments on rabbits the dose of paraldehyde which would annul the vascular influence of caffein without injuring the animal. One gram per kilogram of body weight would he found, do this, and on giving this amount together with caffein, he finds the diuretic effect invariable and very great. Caffein given by itself, fails to increase the urine flow, and the effect of paraldehyde by itself, is comparatively slight. Von Schroeder finds no evidence that caffein affects the kidney epithelium of the dog as it does that of the rabbit. It does not follow therefore, that in man, the combination of caffein with a substance which antagonizes its vascular effects will prove successful. Nevertheless, as caffein does probably, under some conditions, stimulate the secreting tissue in man, it seems possible that von Schroeder's pharmacological results may be turned to good account in therapeutics. He suggests that amylene hydrate should be tried in conjunction with caffein.

Theobromin contains one equivalent of methyl less than caffein, being regarded chemically as dimethylxanthin, whilst caffein is trimethylxanthin. Now it has been shown by Filehne that theobromine, whilst a more powerful muscle-

poison than caffein, has less effect on the cerebral nervous system. The lethal dose, too, is much larger than that of caffein. Von Schroeder thought that on this account it might exert less influence on the vaso-motor centre and the renal vessels, and thus prove a more effective diuretic. In rabbits, he has found that it is a more powerful diuretic than caffein, and that its effects last longer; it is less poisonous, too, and he suggests its use as a diuretic in man, in doses four or five times as large as those in which caffein is given. Other compounds allied to caffein, as ethoxycaffein, caffeinmethylhydroxide, and caffeidin, have been tried by von Schroeder, and found to have no special influence on the excretion of urine. [The view of von Schroeder that the special action of caffein on the kidney vessels is to contract them, is not in accord with the results of Phillips and Bradford.]—*Med. Chronicle*, Dec., 1887.

Treatment of Psoriasis with Iodide of Potassium.

The Norwegian physicians, Dr. Greve and Dr. C. Boeck, have recommended large doses of iodide of potassium for the cure of psoriasis. Dr. Haslund has given this treatment an exhaustive trial in the Commune Hospital in Copenhagen, and in an article in the *Viertelj. f. Derm. u. Syphilis*, 1887, 3 Heft, confirms the statements of these physicians. A very remarkable fact established by Dr. Haslund's experiments is that iodide of potassium can be tolerated in much larger doses than had been previously imagined. He gave the drug in many cases in doses that must be considered enormous. In the case of one man he went so far as to give 50 grammes in a day, and in a number of cases he gave 30, and even 40 grammes a day.

It would appear from a tabulated statement in the paper that in forty cases a complete cure of the psoriasis was attained, whilst in four others there was considerable improvement. In six cases no benefit followed. No reason could be detected for failure in these six cases. Of the forty cases which were cured, twenty-four were men, three women, and thirteen children under 15. Most of the cases were chronic, but five of them were acute and recent. The duration of treatment varied from seventeen days to eleven weeks. In the cases of the men, the average time was five weeks; in the cases of the three women, six, ten, and eleven weeks respectively. In the cases of the children, the time was from five weeks to fifteen, the average being nine to ten weeks. Taking no account of six cases in which the average of treatment was only seventeen to twenty-five days, the average of all the other cured cases was slightly over seven weeks. In all the six cases in which a cure was so quickly attained, the eruption was chronic and almost universal. The disease began to subside in some patients when the daily dose had reached from 7 to 8 grammes, in some 10 grammes, but in most of them in larger doses; in others, only when 20 or 30 grammes daily were given, and in one patient a cure did not begin to show itself until the daily dose was 35 grammes. The total quantity required for a cure varied in men from 160 to 1,390 grammes, in women from 526 to 1,328 grammes; and in the children from 277 to 1,520 grammes. In most of the cases, after the disease once began to disappear, only a short time elapsed until the skin became quite smooth.

Dr. Haslund begins treatment with comparatively moderate doses, but rapidly increases them. It is remarkable that in all the cases slight signs of iodism were

observed only in ten, but in none of these was it necessary to suspend the cure, although the doses were in consequence increased more slowly. With the larger doses there was, in seven cases, disturbance of the digestion, which ceased on the dose being diminished to one-half for a few days, it being very seldom necessary to suspend the iodide altogether. In two cases patients suffered from headache and giddiness; in one patient the pulse was for one day irregular; in two cases there was slight albuminuria, which continued eight days in one, and in the other only for a single day, but it was not found necessary to suspend the iodide.

In one case the symptoms of iodism were severe, indications of paralysis of the heart having become threatening without being actually dangerous. In most of the cases there was not a trace of iodism observed, in spite of the extraordinary doses which were given. Extraordinary indeed the dose must be considered, when a girl of 14 years of age took 40 grammes a day, and a girl of 9 years of age had 35 grammes. In two cases it was impossible to continue the iodide on account of idiosyncrasy. A woman 30 years of age, after one dose presented an appearance resembling that of erysipelas of the whole face, and in her case toleration could not be established. One man, even with very small doses, was so violently affected with headache, sickness, salivation, lachrymation, angina, sinking, and diarrhœa, that the treatment had to be given up.

In three cases the blood was examined during the treatment, and it was found that the number, size, and form of the blood corpuscles were not altered. Dr. Haslund considers himself justified, after these experiments, in considering that we possess in iodide of potassium, given in large doses, a remedy which can with considerable certainty be relied on to cure an attack of psoriasis, and further, that at the present time we know of no remedy which, taken inwardly, can cure it in so short a time. He does not believe that it will prevent relapses, but recommends that iodide should be given for some time after a cure has been obtained. The most striking apparent effect of the large doses was the quickening of the pulse, which, after ten to fourteen days of treatment, usually reached 100, and then went slowly up to 130 per minute. The urine was systematically examined in the cases of four persons in order to determine whether the iodide of potassium increased or diminished the quantiny of urea. From these examinations it appears that iodide of potassium, even when given in very large doses, has no effect on the excretion of urea. The amount of urine quickly increased or diminished in proportion as the dose was raised or lessened. The alleged power of iodide of potassium to diminish fat and lead to shrinking of the glandular tissues was not confirmed. In those persons who suffered, not only from psoriasis, but from chronic swellings of the glands, the glandular swellings remained at the end of the cure unchanged. With reference to the supposed atrophic effect which the drug is thought to have on the testes, ovaries, and mammæ, Dr. Haslund states that in the female patients to whom large doses were given no diminution in the size of the mammæ was observed; on the contrary, in those of them who increased in weight during the cure the mammæ became larger. In regard to the ovaries, no examination was made, but he assured himself that in the male patients the testes underwent no change.

Cases of catarrh of the respiratory organs and of the conjunctivæ were few, and in these so slight that no regard was paid to them; when they were present

it was usually at the beginning of the cure. Bronchitis was never produced. The perspiration was either not increased, or so little that the increase was not observed. In only a few patients was the saliva increased, and that only temporarily. In one, however, there was decided salivation.

Those members of the profession whose studies and duties lead them to be specially interested in the action of drugs, will do well to give careful attention to Dr. Haslund's paper. Perhaps it is not out of place to remind those who might be led to repeat Dr. Haslund's experiments that his patients were under close observation in hospital during the whole period of treatment, and that it is only where constant watchfulness and care can be secured that it can be desirable in the meanwhile to imitate Dr. Haslund's treatment by these heroic doses.—*The British Medical Journal*, January 7, 1888.

Some Recent Observations upon Antifebrin.

Dr. H. Eisenhart reports in the *Münchener med. Wochenschrift*, No. 24, 1887, that he has experimented as to the specific action of antifebrin in thirty-four patients suffering from acute articular rheumatism. He gave it in doses of 23 to 30 grains a day, or 7½ grains three to six times a day, the latter doses producing at times slight cyanosis. The action of the drug was such that, for the most part, after the first doses pain and fever disappeared, the swelling of the joints subsided, and in from three to five days recovery occurred. The result was unsuccessful in only five cases; in three of these five improvement was obtained by the use of salicylate of sodium; while in both the others, the latter also failed. Relapses were observed four times during their stay in the hospital yet final recovery was brought about through antifebrin.

Of the thirty-four patients who were thus treated, seventeen came under treatment for already existing heart complications; of the remaining seventeen, fourteen remained free, and three were attacked in the hospital with it. The author adds that while antifebrin is not to displace salicylate of soda, the former is an agreeable substitute for the latter.

Dr. Géza Dulácksa, of Budapest, (*Pester med. chir. Pr.*, No. 22, 1887)- reports that while he obtained very favorable results from the employment of antifebrin in neuralgia, its antipyretic action was less happy. It depressed the temperature even in small doses, but its employment was never without danger. Apart from the occurence of marked sweating and adynamia, cyanosis or dangerous hemorrhages may result from its powerful action upon the vascular system. The author contributes two cases; in one, repeated epistaxis occurred; in the other (persistent perimetritis), profuse hemorrhage from the uterus.

In the same journal, Dr. E. Boré expresses the belief that the disagreeable symptoms accompanying the employment of antifiebrin, surpass the favorable action of the drug. Sweating, chilliness, cyanosis, irregularity of the pulse, rigors, collapse, even in one case clonic spasms of the lower extremities, (as in anilin poisoning) were observed.

Dr. J. Kovács, in the same journal, (No. 28, 1887), has very different results to report. He has obtained throughout favorable results, and has never seen disagreeable accompanying effects, and never cyanasis. He recommends that the drug should be given in small and repeated doses, as through fewer large doses a

fall in temperature is forced, but slight collapse occurs, with subsequent rise of temperature, frequently under collapse.

The different results obtained by these men may perhaps be accounted for by a difference in the drug itself.

In a contribution to the literature of this subject in *L'Osservatore*, Pietro Faldella and Luigi Poutta, (*Deutsche Medizinal-Zeitung*, November 24, 1887), report their observations upon its employment in sixty cases, which were divided as follows: Croupous pneumonia, 26; acute arthritis, 5; tuberculosis, 9; tuberculous pyothorax, 2; acute nephritis, 2; typhoid fever, 10; pleurisy, 3; hysterical headache, 2; supra-orbital neuralgia, 1; hemicrania, 1. The drug was generally given in wafers by the mouth, as this method of administration was found by experience the most agreeable. Sometimes it was given in clysters, which did not irritate the intestine and were well-borne. The drug is unsuitable for hypodermic use by reason of its light solubility.

The authors state the results of their many observations, in the following propositions: 1. Antifebrin is a powerful antipyretic, but collapse and loss of strength are obtained in the administration of different doses according to individual susceptibility. 2. It does not shorten the course of the disease, nor prevent relapses and complications. 3. In many patients, the fall of temperature is associated at times with increase in the frequency of the pulse and decrease in its strength. 4. In articular rheumatism, it is inferior in power to salicylate of sodium. 5. It exercises a decided influence upon the nerves, and therefore can be employed in many hysterical disturbances, and in neuralgias. 6. It possesses no diuretic properties. 7. Its action is analogous to that of antipyrin and thallin, but is less expensive, and can be given in smaller doses—this is true, particularly with reference to antipyrin. It exercises a less favorable influence than the cold bath, which is to be regarded as the most preferrable antipyretic.

Carbolate of Camphor.

Dr. M. B. Cochran, Shonond, Wis., writes to the *Therapeutic Gazette*, Dec. 15, 1887, in warm praise of what he calls carbolate of camphor. He says: I use this name because I know of no other that so fully describes the mixture under consideration. It is prepared by dissolving camphor in a ninety-five per cent. solution of carbolic acid to saturation. The carbolic acid will dissolve about three times its weight of camphor, and the resultant is a thin, clear, oleaginous mixture, having a strong odor of camphor and a very faint odor of carbolic acid. To the taste it has a strong and, at first, slightly-pungent flavor of camphor, but no flavor of the acid. Taken internally, in 10-drop doses, administered in capsules, it produces a sensation of warmth in the stomach which is not unpleasant, and which continues for an hour or two. When applied to the skin it produces a slightly-warm sensation for a few moments, and when applied to an abraded surface it smarts for a moment, and then all pain ceases. When two or three drops are injected under the skin a stinging is felt for a moment, which is followed by complete anæsthesia of the immediate neighborhood. When mixed with an equal quantity of cotton-seed oil, and applied to a fresh wound on gauze or cotton and kept well covered, no suppuration follows—or has not when I have used it in this way. No vesication or pain follows its use when used in this way, or

applied either to the skin or mucous surfaces. I have been using it for several months, and I submit a few cases in which it has been of marked benefit:

Mrs. P. came to me with herpes of the right leg—numerous clusters of blisters over the entire leg and thigh, which were very painful. One thorough application of the mixture with oil caused an entire cessation of the burning, itching and pain. No new clusters appeared, and desiccation began at once in the old ones, so that in four or five days the patient was well. Nothing else was used. I removed a large fatty tumor from the right arm of Mrs. P. The incision was five inches in length. I dressed the wound with carbolate of camphor and oil, applied on gauze, and it healed without pain or suppuration.

Wm. S. was struck with a knife, the blade of which entered the skin over the superciliary ridge of the right side, passed downwards, laying open the upper and lower eyelids, entered the eyeball on the lower side, and passed through the inferior orbital plate. He was brought to me, two weeks afterwards, with a suppurating eyeball and lids ununited. The left eye was beginning to sympathize with the right, and was painful and sensitive to light. I removed the right eye, and dressed the wound with carbolate of camphor. All trouble of the left eye ceased at once, and no pain followed in the right; and in two weeks I fitted the patient with an artificial eye, and he returned to his home.

August A. came to me with his neck encircled with boils that were exceedingly painful. He had one also on his left wrist. Two of those on his neck and the one on his wrist were about ready to suppurate, and the others were just forming. I injected them all with carbolate of camphor, mixed with an equal quantity of sulph. ether. The pain ceased at once. Two on his neck and the one on his arm went on to suppuration, and three days later, I opened them. The others were aborted, and he had no trouble afterwards. I gave him, however, a teaspoonful of a saturated solution of magnesia sulph. every morning before breakfast in a tumblerful of hot water.

Mrs. J. came to me with an acrid vaginal discharge that had existed for three years, which caused a vulvar eruption, with intense pruritus vaginæ. It followed the menopause, and her life had been one of utter wretchedness in consequence. She also had severe gastric catarrh, with profuse mucous discharge from the stomach. Anorexia, foul breath, and the fæcal evacuations were horridly fetid. Her health was broken, and her nervous system in such a condition that her friends feared insanity. I gave her 5 drops of carbolate of camphor, three times a day after eating, and applied carbolate of camphor on a cotton ball to the os uteri once a week, leaving it for twenty-four hours and following it with daily irrigations of the vagina with hot water. In about one week the foul breath left her, the abnormal fetor of the alvine evacuations ceased, and the pruritus was cured.

The foregoing are only a few of the cases in which I have used it. It melts readily with vegetable oils and with vaseline, mixes with sulphuric ether, disolves salicylic acid, cocaine, iodoform, and in a solution of forty grains to the ounce of the latter hides its horrible odor. I believe that with it all the antiseptic properties of carbolic acid, camphor, salicylic acid, and iodoform can be secured without pain or irritation, and that its use, both internally and externally, may give us most excellent results.

III. GENERAL CLINICAL MEDICINE.

Case of Aortic Aneurism.

Under the care of Dr. DYSON, Physician to the Sheffield General Infirmary. Reported by Mr. G. W. CROOKES. The patient, 34 years old, a railway-spring worker—a very heavy and laborious occupation. About two years ago he complained of severe pain in the left shoulder, dull aching, and much intensified by movement. Subsequently he had severe pain in the left side of the neck and down the arm, which at the time had the character of cervico-brachial neuralgia. Very little improvement was effected while in the Sheffield Infirmary, and he was sent to the sea-side. He returned thence very little better, and on readmission to the Infirmary it was found that his left pulse was considerably less in volume than the right, and was a little later in the time of its beat. The pain in the neck and arm continued, and in addition he had severe pains and tenderness just over and just below the left sterno-clavicular joint. On careful examination a tumor was detected in this situation, which had most of the physical signs of aneurism. There was a patch of dulness about the size of the palm of the hand, expansive pulsation over the area of dulness, a systolic bruit, and in the center of the dull patch a swelling the size of a marble, which pulsated visibly and palpably, and threatened shortly to invade the intercostals and the skin. There was no thrill, no alteration in the pupils, no difference in the expansion of the two sides of the chest, no paroxysmal dyspnœa, no stridulous breathing, no alteration of voice, and no dysphagia. Heart apparently healthy. The treatment consisted in an ordinary liberal diet, scrupulous rest in bed, and the administration of iodide of potassium in increasing doses. He is now taking fifteen grains three times daily with no apparent inconvenience. His condition is greatly improved. The pain in the neck is much diminished, pain and tenderness over tumor nearly gone, pulsation is much less in quantity and distribution, and feels like the jog of a solidified body; the tumor is much less distinct. Patient has gained flesh considerably.

There was no history of syphilis, the probable cause of the aneurism being the strain produced by the man's laborious work. His present condition would lead one to suppose that a cure is being effected.—*Medical Press and Circular*, Jan. 25, 1888.

Sea-Sickness.

At a meeting of the Académie de Médecine an important discussion took place on sea-sickness and its treatment by antipyrin. M. BONNET considered that sea-sickness was provoked by different sensorial causes, such as sight, smell, sensation of cold, etc. As to the theories of mechanical causes, he found them to be insufficient to explain the affection. Gastric disturbance would seem to be one of

the most frequent exciting causes, and consequently he advised that a day or two before embarking, a light saline aperient should be taken, and even sometimes an emetic might be ordered. If the vomiting cease after a day or two, the fact should not be ascribed to the person becoming accustomed to the sea, but because the gastric trouble has disappeared. In any case, when the condition of the stomach has ameliorated, antipyrin should be given in the following manner. For those persons who suffer simply from vertigo, twenty-four grains of the drug, in one dose, will generally suffice; whereas to those who suffer from distressing vomiting, thirty grains should be given at once, and, if necessary, fifteen grains more in an hour. Those persons who cannot retain antipyrin, can be given it by the hypodermic syringe, two injections of ten grains each at a time. M. CHATIN said he crossed from Rouen to Havre, accompanied by two of his *confrères*, and nearly every one on board was ill. He recommended that a committee should be named by the Academy to study the value of the different remedies proposed against sea-sickness. M. LE ROY DE MERICOURT said that he could not accept the theory of gastric disturbance advocated by his colleague. He was very subject to sea-sickness, and the fact of changing from one boat to another immediately made him sick. Once on board the *Archimede* he was invited to dine with the commander, whose cabin was as usual at the hind part of the ship. Although he had breakfasted very heartily in the morning, he was seized with very distressing sickness. As to the treatment by antipyrin, he was inclined to accept it, but he thought that to eat well and drink champagne was the best preventive. M. JAVAL thought that chloral was the best remedy. He had frequently used it himself, and prescribed it for others, and each time with good effect. M. ROCHARD could not accept the explanation given by M. Bonnet, but thought that the affection should be attributed to the vertigo which one feels when the boat sinks in the trough of the waves. A good repast with alcohol or champagne succeeded frequently with him. Formerly he used with effect, belladonna ointment on the stomach, and he heard that subcutaneous injections of atropine produced the same result, but he had never tried them. M. LE FORT thought the confidence passengers had in remedies might explain in a great measure their success.— *The Medical Press and Circular*, Jan. 25, 1888.

Paroxysmal Tachycardia.

DR. FRANK C. BRESSLER, Baltimore, Md., in a paper on this subject in the *Med. Record*, January 7, 1888, says that tachycardia is a trouble of such exceeding interest to the physician that every case occurring is worthy of being reported, and especially those which are not functional only, but associated with some distinct organic heart-lesion. By tachycardia is meant that condition of the heart in which the heart's beats are increased in number, retaining a perfect regularity in each beat. The number of heart-beats may vary from one hundred to two hundred, or more, per minute. The period of this increased frequency of the heart may vary as to duration, lasting from a few hours to days and weeks. This condition must not be mistaken for palpitation of the heart, since palpitation is (1) induced usually by excitement, stimulants, etc.; (2) the attack is of brief duration; (3) there is absence of severe depression; and (4) there is intermittency of the heart's action. In order to make the subject of tachycardia plainer, he reports the following history of a case which he had under observation during the last twelve months:

About one year ago he was hastily summoned one evening about eight o'clock, to see an elderly gentleman, sixty-five years of age, about five feet six inches in height, weighing, perhaps, between one hundred and forty-five and one hundred and fifty pounds. He found him sitting in a chair, face pale, pupils moderately dilated, body covered by a profuse sweat, whole body trembling so as to suggest senile tremors, which, however, ceased on the patient walking about; the breathing was rapid, like that seen in a person who has run rapidly for some distance; the pulse so rapid as not to be counted. The temperature was not taken, as it was forgotten. The symptoms were of such a nature as to make the author think of angina pectoris, or internal hemorrhage, but the attack, after lasting about two and a half hours, ceased entirely, and the patient's condition was as good as before, except a slight malaise. From the absence of pain about the præcordia, and because of the perfect and rapid recovery, both of these troubles were excluded, and a diagnosis of palpitation of the heart was made. As to the cause of this attack, none could be assigned, the patient saying "that it came upon him suddenly while sitting in the store, and that nothing had either excited or worried him to cause any nervous disturbance." He was a moderate smoker—not of cigars, but of a pipe—smoking, perhaps, four or five pipes in a day, which he had always done from youth up. The case finally passed out of Dr. Bressler's memory, when one Saturday evening about three weeks ago, he was again sent for, and found his patient in precisely the same condition he had seen him it at his last visit. He gave him some tincture of digitalis and belladonna, but with little immediate effect. This attack lasted nearly three hours. After the attack was over, the following day a close examination was made in order to find the cause, but all questioning elicited nothing satisfactory. From these two attacks, and from two others which were not so severe during the interval, the conclusion was reached that this was not a case of palpitation, but one of tachycardia, paroxysmal in nature. The most interesting part of the whole thing was that it was associated with an organic lesion, viz., mitral regurgitation.

Authors generally state that tachycardia is a functional condition, and only in rare cases associated with organic lesions. Flint, in the last edition of his work on the practice of medicine, states that he had met with but one instance of this condition, but it was not associated with any heart-lesion. Nothnagel relates a case in a young man thirty years of age. He makes the statement that paroxysmal tachycardia in cases of organic heart disease is very rare, and that he does not remember a similar case in medical literature.

The author's patient dates his trouble to exposure, having been out on a raw, chilly night some seven years ago. Previous to this time he never had had any trouble with his heart, not so much as palpitation. He has about three or four attacks a year, which come upon him very suddenly, independent of any exciting cause: suddenly he notices his heart beginning to beat rapidly, then all the above mentioned symptoms follow. Up to the present time his longest attack lasted four hours. So far as exciting cause is concerned, he can assign none—each attack has come upon him while engaged in such pursuits as do not generally give rise to palpitation. In his last attack he stated he was standing on the side-walk, leaning against a box; had not spoken to anyone for at least fifteen or twenty minutes, and his mind was free from worry or thought; and, in fact, he

stood outside "to kill time," showing that there was no exciting cause to induce this condition.

During the intervals of the attacks the pulse is regular and moderately full, varying from 72 to 84. Health otherwise, is good, digestion perfect; his bowels are regularly moved, and he avoids all those things which might be injurious to him.

As to the pathology of this condition, so far from the rarity of this trouble, it is simply a matter of conjecture, as the author does not think a post-mortem has been made on any of the afflicted patients. Still, with our knowledge of the nervous mechanism of the heart, we must know that it depends upon some perverted condition of the nervous arrangement; whether it is central or peripheral we cannot say. He looks upon the trouble as one in which the centre which presides over the cardiac movements is temporarily inhibited; but whether this is induced by some vascular change taking place suddenly in this centre, owing to some peripheral cause, or to some disturbance at some distant part in the brain (perhaps temporarily, likewise), which fails to transmit the impulse to the centre, thus failing to stimulate it, in consequence of which the inhibitory action of the heart is interfered with, resulting in increased heart's action, he is no able to prove. But with all that he thinks the trouble is situated in or near the cardiac centre—at least in that portion of the medulla wherein the centres for sweating, respiration, and cardiac movements are located, since in Nothnagel's case deep inspiration moderated the cardiac movements considerably, while other experiments had no effect on it.

Hysteria and Syphilis.

In a lecture at the Hospice de la Salpêtrière, Professor Charcot stated that the more profound our knowledge of hysteria, the more we find justified the term "neuromimetic," applied to this neurosis by Sir James Paget, the eminent Engglish surgeon. Its determinations upon the cerebro-spinal system are so varied that they can lead into error an observer inexperienced in the matter, especially in the particular cases in which the disease seems to produce its effects under the influence of an anterior or intercurrent affection. So we must recognize the fact that hysteria often remains latent, and only waits an occasion to manifest itself. This occasion is frequently furnished by some infectious diseases, such as pneumonia and typhoid fever; by some intoxications, as alcoholism, saturnism or mercurialism; by some traumatisms, as was formerly pointed out by Benj. Brodie, and has more recently been demonstrated by Charcot. And finally, it may be occasioned, as in the present case, by syphilis. From the fact that saturnism has been the means of bringing the hysteria to light, ought we to believe that we have to do with saturnine hysteria? Certainly not; for hysteria from lead is the same as alcoholic hysteria, or hysteria from a neuropathic, non-toxic cause. Lead intervenes as an exciting cause and nothing more; and if the intoxication can sometimes, as we have seen, determine the form and the seat of manifestation of the hysteria, it does not change its nature, being similar, in that respect to a traumatism which, from whence soever it comes, and whatever its nature may be, always intervenes in the same way. Ten persons will be simultaneously struck a violent blow upon the shoulder, but only one of them will have

an hysterical monoplegia, because he alone is susceptible of hysteria; in the same way as an alcoholic, or one suffering from lead poisoning, among the ten, for example, may present some convulsive symptoms upon the occasion of an excess of drink, or from the absorbtion of a more considerable dose of the poison. But the hysteria of all three, from traumatism, lead, or from alcohol, will remain identically the same; only the localization may, perhaps, differ, and the form of certain seizures will sufficiently mark and limit the part from the rest to make it proper to use in the symptomatology of the hysteria the influence of the exciting cause.

The patient presented by M. Charcot to illustrate this lecture was a man 28 years old, who contracted syphilis when 18, and took very bad care of it. On January 1, 1884, on entering his house, he fell suddenly and was unconscious. When he came to himself, it was found that he was attacked with hemiplegia and right hemianæsthesia, with contracture not only of the muscles of the arm and of the leg, but also of the tongue, the point of which was bent around and forcibly applied against the right molars. Some days later nocturnal headaches appeared, which radiated into the neighboring parts; and a little later convulsions, epileptiform in character. Of course, mercury and the iodides were largely employed, but if the paralysis seemed to grow better, it never was completely cured, but was interrupted by two other attacks of an apoplectiform character; nor did the headaches cease, but still persist to-day with their nocturnal character.

Charcot has remarked that the hemiplegia in these cases, besides being marked by a very decided diminution of the muscular sense, is accompanied with complete hemianæsthesia, a rare phenomenon in organic lesions, a point for which new observations recently reported by M. Ferrier to the Society of Medicine of London, and followed by autopsy, can be considered as a truly good fortune. Moreover the phenomena which were observed on the part of the tongue were spasmodic, not paralytic in character, and are referable to the hysterical glosso-labial paralysis recently described by him; and the convulsive crises, occurring between times, present to the attentive and experienced eye, the characteristics of hysterical attacks in man.—*Progrès Médical*, Dec. 17, 1887.

The Treatment of Enteric Fever.

In a clinical lecture delivered at the Philadelphia Hospital, Dr. James C. Wilson, Physician to the Hospital, and lecturer on Physical Diagnosis in the Jefferson Medical College, said: I bring before you this morning two patients who illustrate a disease with which you are familiar, but the cases are so typical that I have thought it advisable to show them to you. Both the patients are young men about the same age; they were admitted to the hospital on the same day, and are within a few days of being at the same point in the course of the disease. They are cases of enteric fever, one at the end of the eighteenth day and the other at the end of the sixteenth day. They were admitted to the hospital nine days ago. The first patient is a street-car conductor, who recently changed his boarding-house and went to live in a house which had not been occupied for some time, and in which there had been previously some sickness among the children, the nature of which we have been unable to ascertain. Four years ago he had an

attack of fever lasting four weeks. He does not know the nature of this fever. After he moved to the new house he had an attack of diarrhœa, lasting for one week. I may here mention that it is not uncommon for individuals who are exposed to the infecting cause which gives rise to enteric fever to have attacks of diarrhœa and feverishness, which do not, however, amount to the well-characterized disease. This may occur some weeks before the outbreak. I am quite sure that a slight degree of exposure to what used to be called the epidemic influence of the disease, is sufficient to give rise to symptoms suggesting enteric fever without causing the well-characterized disease. The case before us was, I think, an example of this. One week before admission he was obliged to go to bed. For a week before that he had had diarrhœa, but not much headache, and there was no special soreness in the abdomen. On admission there were rose spots on the abdomen. The eruption has not been abundant, but there have been a number of characteristic spots.

On inspection we note that the abdomen is full. There is some gurgling on pressure over the abdomen, particularly in the right iliac fossa. There is no tenderness at this point. There has been no splenic enlargement. The first sound of the heart is very feeble and the pulse is slightly dicrotic. There are numerous râles heard over the lungs. As you see, the tongue is dry in the middle and moist at the edges. It is slightly fissured and covered with a whitish-gray coating. The gums are slightly swollen. The facies is almost characteristic of the disease. There is only one other condition which looks at all like this, and that is acute tuberculosis, between which and typhoid fever the diagnosis is often difficult. In this patient the temperature has ranged between 100° and 101.5° in the morning and 103° and 104° in the evening. The lowest temperature recorded was 97°, which was reached yesterday. The highest point was 104.2°, which occurred on what we estimate to be the tenth day of the disease. The urine has been found to be non-albuminous, and its quantity has varied from one pint to two and one-half pints per day. The attack has been characterized by constipation, and this is a matter of some importance, because we are in the habit of regarding diarrhœa as characteristic of enteric fever and as an important diagnostic symptom, but in this city, during the past three or four years, there have been as many cases of enteric fever attended by constipation as by diarrhœa. In the present instance, during the first ten days in the hospital, there were but one spontaneous movement of the bowels and one induced by injection. It may strike you as curious that we should be willing to allow a case of enteric fever to remain constipated for so long a time, but the patient has been doing so well, and there has been so little evidence of active ulceration of the bowel, that we have not concerned ourselves very much with the condition of the bowels, and have preferred to allow the case to run its natural course.

The second case is that of a young man, twenty-five years of age and a baker by occupation, who was admitted on the same day, although from a different neighborhood. Three years ago he had venereal disease, but there appear to have been no secondary manifestations. He has been in the habit of drinking beer to excess. Seventeen days ago he was taken sick, but continued at his work for three days, although suffering with headache, general weakness and diarrhœa. When admitted to the hospital, he was extremely weak, had a good deal of head-

ache, and still suffered with diarrhœa. The tongue was coated and the mouth dry. There was no complaint of pain. The abdomen was distended and numerous rose spots were found. The anterior surface of the thorax was covered with spots, some of which were obviously due to acne, while others were evidently the rash of enteric fever. At the points previously occupied by the typhoid-fever rash there are well-defined spots of pigmentation. This leads me to speak of a matter, which I think is not always made clear, and that is, that in certain skins and under certain circumstances, the disappearance of the red spots of typhoid fever is not at once complete. A little spot remains sometimes for days or weeks. On this man's abdomen we find numerous pigmented spots, corresponding in size and arrangement with the typhoid-fever rash. This results from the fact that some of the coloring matter of the blood has been effused into the spot. The abdomen is by no means prominent and there is very little tenderness. There has been some enlargement of the spleen and the action of the heart is weak. There is also slight dicrotism. The tongue is dry in the middle, with a yellowish-white coating on each side. The gums are slightly swollen and red. The highest temperature reached in this case was 104°. It is now a little below 100°. The amount of urine passed varies between one and one and a half pints, and it contains no albumin. There was at first a little tendency to diarrhœa, and on the day of admission he had five stools. During the following five days the bowels were not opened. He was then given an enema, and this was followed by a formed stool and afterward by several loose movements. The lungs have been carefully examined, with negative results.

These patients have been kept in bed and given a liquid diet, and treated with the utmost care, in accordance with the expectant method of managing the disease. To obviate the tendency to pulmonary hypostasis, the patients are at intervals turned from one side to the other. Medicinal treatment has been in accordance with what is known as the specific plan. This is a matter on which there has been a good deal of difference of opinion. I will preface what I desire to say in regard to this treatment, with the statement, which will be acquiesced in by all clinicians, that, with regard to prognosis, we may divide cases of typhoid fever into three groups. In one large group, probably comprising seventy per cent. of the cases, the purely expectant cases will result in recovery. In a smaller group, comprising about ten per cent. of the cases, no treatment will save the patient's life. Either the virulence of the infecting principle, or the dose of the poison has been so great, or the resisting powers of the individual are so unequal to cope with the disease, that death is inevitable, and in this group no treatment has any influence. In the remaining twenty per cent. of the cases the disease is very grave, and certain accidents are liable to bring about the fatal issue. These accidents and complications must be recognized early and carefully managed in order to save the patient's life. In these cases a certain proportion can be saved by judicious treatment.

The methods of treatment and the drugs recommended in typhoid fever are legion, yet it is often possible to recognize in the profusion of therapeutic measures an intelligent, scientific method of treating the disease. If this mass of therapeutical material be carefully examined, it may be divided into four groups. The first is the so-called expectant method, based upon the fact that the

disease is self-limited, and if the vital forces of the organism are sufficient to withstand the perturbating influences until the poison has expended itself, recovery will take place. This method is applicable only to the milder and less troublesome cases.

The second method is the symptomatic, in which symptoms are treated from the beginning. If diarrhœa is present, it is relieved; if constipation exists, it is counteracted. If there is cough, remedies are given to allay it. If there is high temperature, an attempt is made to reduce it. This method of treatment embraces the larger number of therapeutic measures which have been recommended.

When you add to the expectant plan the so-called symptomatic method, and treat the symptoms as they arise, you have a third method, which has been termed the rational method. In this plan, while recognizing the fact that the disease will run its course if left alone, you look out for symptoms, and relieve them if they become troublesome.

The fourth method, which has not, however, found general favor with the profession, but which, in our present knowledge with regard to the causes of infectious diseases, has something to recommed it, is the specific method. If you cast your eyes over the great number of methods of treatment and therapeutic measures recommended, it will be easy to arrange all of them in one or another of these four groups. It will be found that the symptomatic method of treatment will include the greatest number. It will include all forms of antipyretic treatment—all those measures which are supposed to act upon the intestine and to relieve the intestinal catarrh, all those measures directed to relieving the tympany, and those which are directed to relieving the failure of the circulation, and so on.

Considering these forms of treatment, you will see that the attitude of the physician toward the patient will vary according to the method of treatment which he adopts. If he adopts the expectant method, and does not pay attention to the symptoms, he is liable to have sprung upon him suddenly some symptom which is quite unmanageable and which requires all his energies and resources, and which in the end may baffle him. The attitude of pure expectancy is not a comfortable one, but to stand by the bedside of the patient, armed only with the symptomatic method of treatment, is still less desirable.

A series of clinical experiments continuously carried on during a period of five years, has led me to the conclusion that in theory, at least, if not indeed, in practice, a specific treatment of the specific infectious diseases is the true treatment. By the specific treatment, I do not mean that something taken at random has been found to exercise a favorable influence, but I mean the use of such therapeutic measures as have been found, by investigation and experience, to exert an unfavorable influence upon the continuing cause of the disease. Perhaps prior to the discovery of the fact that bark controlled ague, it would have seemed irrational to talk of finding a therapeutic measure which, by acting on the cause of the disease in the blood, would bring the ague to an end. We know that quinine will cure periodic fevers and is a specific in the sense that it acts directly upon the cause, and the work now being done in connection with the nature of the morbid principle in ague, and the known action of quinine upon the life history of certain of the lower organisms, shows that it is a perfectly scientific assumption that quinine

acts in the body upon those organisms which infest the blood and produce the paroxysms of ague. What do we know about syphilis? If we assume that iodide of potassium and mercury merely act as tonics, the argument does not hold; but if we believe that they act on the organism as a specific, and arrest its growth, then the argument does apply. I hold that in all infectious diseases we should seek for such remedies as will act upon the cause of the disease, and which, if it does not arrest the disease, will at least, mitigate the symptoms.

The details of the plan which I have employed in the treatment of my cases of enteric fever during the period named, and which is based upon the theory of specific or causal therapeutics, is as follows: So soon as the patient is found to have enteric fever, or, in many instances, as soon as his symptoms warrant a reasonable suspicion that he is about to develop it, he is put to bed, ordered a diet consisting of milk, animal broths, jelly and simple custards, in small amounts and at intervals of two or three hours. At night he is given a dose of calomel. This dose varies in amount from 7½ to 10 grains, and is repeated every second evening until three, or rarely four, doses have been administered in the course of the first six or eight days. It is given alone or in connection with sodium bicarbonate. There is, commonly, a slight increase of diarrhœa, if it be present, without aggravation of the other symptoms, and in some instances the tendency of the temperature at this time to steadily rise appears to be controlled. If, as is frequently the case, spontaneous diarrhœa has not occurred in the first week, calomel usually brings about two or three large evacuations on the day following its administration, not more. In either case, the tendency to frequent passages in the later stages of the attack is favorably influenced by the repeated administration of this drug during the first week. If the case does not come under observation until after the tenth day, one only, or, at most two doses of calomel are given. No further doses of it are, however, given during the course of the attack, unless constipation occur. In this event, if the evidences of extensive or deep implication of the intestinal wall, such as the abdominal pain, tenderness, or marked tympany, are absent, calomel in 7½ grain dose is given at intervals of four or five days. If there is reason to suspect serious intestinal lesions, the lower bowel may be more safely emptied of its contents every third or fourth day, by enemata of moderate size (8 to 10 fluid ounces). It is necessary to bear in mind that the gravest lesions of the gut, leading even to hemorrhage and perforation, have occasionally been observed in cases characterized not only by constipation, but also by an entire absence of pain or tenderness, and very moderate tympany. The danger of salivation from calomel in these doses in enteric fever seems to be slight. In only one case in sixteen were the mercurial fetor and slight swelling of the gums observed.

Excessive diarrhœa has been controlled by the use of opium, either in suppositories containing one grain, or by the mouth in quarter grain doses, often associated with bismuth and given *pro re nata*. It is an invariable rule that the patient be kept in the horizontal position and to the use of the bed pan and urinal, from the time of the recognition of the disease until defervescence is completed. He is, however, turned upon his side from time to time, and made to maintain that position for twenty or thirty minutes, if necessary, being supported by the nurse.

From the beginning of the attack the following mixture is regularly administered in doses of one, two, or even three, drops in a sherry glassful of ice water after food, every two or three hours during the day or night:—

℞ Tinct. iodi,.....f ʒ ij
Acidi carbolici liq.,.....f ʒ j. M.

Unless some unusual circumstances occur to render a change necessary, this medicine is not suspended until the attack draws to a close. It is well borne by the stomach and excites no repugnance on the part of patients. In one case only has it been necessary to omit the carbolic acid on account of the disgust caused by its odor.

Partly for the sake of its favorable influence upon the skin and for the sake of cleanliness, partly because of its favorable, though slight influence upon the temperature, the patient is to be sponged twice a day with equal parts of aromatic vinegar or alcohol and cold water. If it is more grateful to him, this sponging may be done with tepid water, the evaporation of an extensive film of water not below the temperature of his body probably being not wholly without some slight influence in reducing temperature.

When the evening axillary temperature reaches 104° F., antifebrin, in doses varying from 5 to 7½ grains, or antipyrin, in doses varying from 10 to 15 grains, is administered, and from time to time repeated as the temperature rises to the point indicated.

The minor nervous symptoms are best held in check by skillful nursing. For the relief of the headache of the first ten days, absolute quietude, a dim light, etc., are often sufficient; occasionally the bromides alone, or in combination with chloral, are required. Later in the course of the disease chloral is unsafe. From the end of the first week the patient cannot be left unattended, even for a few minutes, without risk. Persons in whom delirium was only occasional and transient have, in many instances, destroyed themselves during the momentary absence of the nurse.

Alcohol is not often indicated prior to the beginning of the third week. It may, however, by reason of the habits of certain patients, be necessary throughout the attack. Although forming no essential part of the treatment, it is commonly administered in varying, though usually small amounts toward the close of the sickness. Some patients do well without taking it at all. It is, of course, administered in accordance with well-understood indications: upon the supervention of delirium, ataxic symptoms, and the evidence of failure of the force of the circulation. The patients are carefully watched well into convalescence, and cautioned against too soon regarding themselves as restored to health.

The dangers of the establishment of a focus of contagion are guarded against by the systematic, thorough disinfection of the stools immediately after they are voided.

The considerations which led me to adopt the plan of treatment thus indicated are:—

1. A feeling of dissatisfaction regarding the expectant method of treating enteric fever. This feeling, vague at first, grew more definite and stronger with increasing clinical opportunities and a fuller knowledge of the natural history of the disease, until it became a motive, impelling me to cast about for some different

and more satisfactory plan. This feeling has been, during the past decade, a very general one in the profession in all parts of the world, as is attested by an almost endless succession of journal articles setting forth new plans of treatment and the use of new drugs in the management of this, the most common and the most important of the acute infectious diseases of the present epoch in medical history. Most of the plans thus suggested have led to disappointment when tested by the fuller observations of the profession; many of them have failed to attract general attention, and some few are still *sub judice*. Their number and diversity bear witness to a widespread distrust in the once well-established expectant treatment. This distrust is, however, based upon something more tangible than a mere feeling of dissatisfaction. The statistics of all observers whose cases have been sufficiently numerous to be trustworthy, show enteric fever to be, when treated by the expectant plan, a disease of high death rate.

The percentage of fatal cases rarely falls below 15 per cent. and often exceeds 25 per cent., according to the hospital records of this country, Great Britain and continental Europe. Jaccoud, with a collection of 60,000 cases, observed a mortality of 20 per cent.; Murchison, in 27,051 cases, 17.45 per cent.; Liebermeister, in 1,718 cases, at Basle, under an expectant plan, records 27.3 per cent. of deaths. But turning from broad generalizations to personal experience, who is there here that, many times elated by the happy issue of mild or average cases treated by the expectant plan, has not realized the sense of utter powerlessness attending it when he stood face to face with cases in which to do, rather than wait, has been necessary to save life.

2. Enteric fever is the very type of the general diseases, of affections *totius substantiæ*. The tissues are universally implicated in the morbid processes; no function of the body wholly escapes perturbation. For this reason plans of treatment suggested by the prominence of certain groups of symptoms, or by the known lesions of particular organs, even though of undoubted benefit as far as they go, are, in theory, unsatisfactory, because they are directed, in effect, against conspicuous manifestations of the cause of the sickness rather than against the cause itself; while in actual practice, the treatment by turpentine, by alcohol, by opium with lead, or the silver nitrate, or by agents capable of controlling the febrile movement, as quinine, digitalis, salicin and the salicylates, even the cold-water treatment itself, although at times, and in the hands of certain clinicians, showing favorable results—all these have failed of general acceptance on the part of the profession.

3. The general character of the disease, the specific nature of its cause, the unsatisfactory results alike of an expectant and of a symptomatic plan of treatment, or, rather, of the two combined, have united to render the idea of a specific treatment, a true cure for enteric fever, a most attractive one, to stimulate thoughtful observers to renew again and again the disappointing search for it. To this idea may be traced the treatment by the mineral acids, by chlorine water, by carbolic acid, by quinine alone, by quinine and digitalis, by iodine, by the potassium iodide, by calomel.

4. Not only is the conception of a specific treatment for specific diseases a most attractive one, and the attainment of such a treatment for enteric fever brought within the bounds of a reasonable hope by the analogy of syphilis and

the malarial diseases, but the search after it with due caution and judgment has also the warrant of the highest medical authority.

Passing by some earlier names, I refer to Da Costa, who has said: "It would be as illogical as absurd to suppose that we shall never possess the coveted means really to cure the continued fevers. Doubtless to the physicians of the time of Charles V, the radical and specific treatment of the malarial fevers appeared as hopeless and remote as the radical and specific treatment of the continued fevers appears to the scientific inquirer of our day."

I refer also to Liebermeister, who, treating about 800 cases, part with calomel, part with iodine, had with the former drug a mortality of only 11.7 per cent., with the latter of 14.6 per cent., against 18.3 per cent. for cases treated without those remedies, but in other respects upon a similar plan.

Bartholow has also spoken in favorable terms of the treatment by iodine in combination with carbolic acid.

The treatment adopted is thus seen to consist of the use of the two remedies that are proved to exert a favorable influence upon the disease, iodine and calomel, with the addition of carbolic acid in minute quantities. That it amounts to a specific treatment in the narrow sense is not affirmed. It is tentative, provisional, but it is, nevertheless, to be regarded as a contribution to the subject of the specific treatment of enteric fever.—*College and Clinical Record*, Feb. 1888.

The Preparation of Food for the Sick.

The preparation of food for the sick is a matter of such importance that, although the subject is trite, we scarcely think an apology is necessary for devoting a leader in this early number of 1888 to the discussion of the preparation of soups.

In making a beef-tea the round of a good piece of beef should always be selected, and cut into small cubes not larger than half an inch in diameter. It should then be put to soak for two hours on the back of the range, in an earthenware pipkin, with one pint of cold water, and allowed to simmer for about fifteen minutes and boil for three minutes. After adding half a teaspoonful of salt and a little pepper, the tea is ready for use.

In the preparation of soups the first thing is the making of the so-called stock or basis for the soup. There are two distinct stocks: one which may be known as the brown stock, the other as clear, or *consommé*, stock. For the preparation of brown stock take four pounds of shin of beef, four quarts of cold water, ten whole cloves, four pepper-corns, a bouquet of herbs (sweet marjoram, summer savory, thyme, and sage), one tablespoonful of salt, three small onions, one turnip, one carrot, two stalks of celery, two sprigs of parsley. Cut the meat from the bones, after which place the bones and half of the meat in a soup-kettle and allow to stand for half an hour in cold water. Heat gradually and allow to simmer for six or seven hours. Brown the remainder of the meat in two tablespoonfuls of beef-drippings and add with the other meat and with the vegetables chopped fine, when the kettle is put on the fire to simmer. After it has simmered the required time the stock is strained and set aside to cool, the fat being removed from the top. The stock is then ready for use.

Out of the brown stock may be made St. Julienne soup by the following

process: In making these soups the stocks must never be allowed to boil, or at most must be brought only for a moment to the boiling-point. For St. Julienne put one pint of the brown stock on the fire to heat, after which a pint of finely-chopped vegetables (turnip, carrot, etc.), with half a teaspoonful of salt, should be put on with a little water to parboil. This being done, add the vegetables to the stock, season with half a saltspoonful of pepper. Vermicelli soup is made by adding half a cup of vermicelli to a pint of the brown stock. Cook the vermicelli for ten minutes in salted boiling water, season with a half-teaspoonful of salt and a half-saltspoonful of pepper, and add to the warm stock.

Consommé stock is to be made in exactly the same way as the brown stock, except that three pounds of the knuckle of veal are to be added to the meat and all the meat is to be put in at once without browning. After the stock has been formed, in order to clear it add the white and the shell of one egg, the juice and rind of one lemon, beating them all up together; then put on the fire, bring to the boiling point, strain through a sieve and again through a napkin, without pressure or squeezing, and serve.

For making chicken-broth, take three pounds of chicken well cleaned, cover with cold water, boil from three to five hours (until the meat falls to pieces), strain, cool, and skim off the fat. To a pint of this add salt and pepper and two tablespoonfuls of soft rice, which has been previously thoroughly boiled in salt-water; bring the broth to a boil. In preparing the rice half a cupful should be boiled for thirty minutes, with a teaspoonful of salt in a pint of water. To make mutton-broth, take one pound of lean, juicy mutton, chopped fine.—*Therapeutic Gazette*, Jan. 16, 1888.

Lobar Arrangement of Phthisical Lesions.

Lesions of the Upper Lobes.—Dr. J. Kingston Fowler, Assistant Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, in a communication to the *Practitioner*, October, 1887, says that the extreme apex of the lung is not often, in his experience, the site of the primary lesion. The more common seat is situated from an inch to an inch and a half below the top of the lung, and rather nearer to the posterior and external borders. Lesions in this situation tend to spread in the first instance backwards, possibly from inhalation of the virus whilst the patient is lying down. This accounts for the fact that an examination of the supraspinous fossa will often give certain evidence of the presence of disease when the physical signs in front of the chest have left us in doubt, proving that the disease, as is generally the case, is more advanced there than towards the front of the chest. The investigation, therefore, of this part of the lung is so important that it should never be omitted. From this primary focus, which in front corresponds to the supra-clavicular fossa or a spot immediately above the centre of the clavicle, the lesions often first spread downwards along the anterior aspect of the upper lobe, about three-fourths of an inch within its margin, frequently occurring in scattered nodules, separated perhaps by an inch or more of healthy tissue. If, therefore, the disease appears to be limited to the apex, a careful examination should be made along a line running about one and a half inches from the inner ends of the first, second, and third interspaces. It is not unusual to find in these scattered nodules the only evidence of disease

on the anterior aspect of the lung, when posteriorly excavation has advanced to such a degree that little more than the two layers of the pleura united by adhesions remain. This is another reason for making a careful examination of the supra-spinous fossa.

The second and less usual site of the primary affection of the apex corresponds on the chest wall with the first and second interspace below the outer third of the clavicle. The lines of extension are usually downwards and backwards, so that after a time an oval area of lung is involved occupying the outer part of the upper lobe in the situations just mentioned. Dr. Fowler is inclined to think that the spread of the disease is more rapid when the primary lesion occupies this site. The lesions in the advanced stages—cavities—are of course formed by the coalescence and extension of these primarily affected areas; and this part of the subject has been so fully treated by Dr. Ewart in his lectures, that it is unnecessary to say much as to their exact limits. The scattered nodules of consolidation on the anterior surface of the lung often unite and break down, forming a long sinuous cavity which may extend almost to the lower anterior margin of the upper lobe; posteriorly, where the signs of excavation are usually most distinct, the further progress of the disease is generally arrested at the pleural reflexion in the interlobar septum. This was found by Dr. Ewart to be destroyed, and the cavities in the upper and lower lobes united, in only five out of one hundred and fifty-two consecutive cases of phthisis examined *post-mortem*.

Lesions of the middle lobe.—The middle lobe of the right lung, which is believed by Aeby, from the arrangement of the bronchi, to be the analogue of the upper lobe of the left, is rarely the site of a primary tuberculous lesion. It is, so far as the author has observed, almost invariably affected after the upper lobe of the same side, and usually at a rather late period of the disease, whilst not uncommonly it escapes altogether. The lesion most commonly found there is a coarsely granular tuberculo-pneumonic nodule often of large size, in process of caseation, with an area of softening in the centre.

Extension to the lower lobe.—The lower lobe of the lung primarily diseased is usually affected *at a very early period*, often long before any extensive infiltration or destruction of the upper lobe has taken place, and almost invariably before the apex of the opposite lung. In one case, however, in which the patient died from tuberculous meningitis, the apices of both lungs were the seat of tuberculous disease, whilst the lower lobes had entirely escaped infiltration. It was interesting to note the signs of arrest of the disease at each apex, showing clearly that in both lungs the process had been stayed before the lower lobe on either side had become affected. In the left lung the changes were of much older date than in the right, and the patient had clearly been the subject of two separate attacks of tuberculosis. It is common enough to find arrest of pulmonary tuberculosis when one apex and its corresponding lower lobe have been affected, but it very rarely happens that arrest of the disease occurs at both apices without infiltration of either lower lobe. The early stage of the disease at which the lower lobe is implicated, is well illustrated in lungs presenting apex lesions which have undergone arrest. The area of disease at the apex may not be larger than a cherry or an olive, but if the disease was tuberculous a nodule will commonly be found in

the lower lobe, showing how soon that part of the lung becomes affected in phthisis; whilst on the other hand, Dr. Fowler has seen extensive lesions at the apex not presenting a trace of tubercle, in which the lower lobes were quite free from disease. This arrangement of lesions thus becomes an important rough *post-mortem* test of the presence of tubercle, and is strong evidence in favor of the existence of a "line of march" of the disease. In speaking of it as a test of a tuberculous lesion, it is necessary to define the limits of its application: it holds good, as a positive test, but its absence does not negative tubercle, for the disease, as in the case just related, may have been arrested before there was time for extension to the lower lobe to take place.

The site of the primary infiltration of the lower lobe is usually situated about an inch to an inch and a half below the upper and posterior extremity, the apex of the lower lobe, and about the same distance from its posterior border, although in some cases it has been found nearer to, and even at the apex of this lobe. This situation corresponds on the chest-wall to a spot opposite the fifth dorsal spine, midway between the border of the scapula and the spinous processes.

The infiltration of the lower lobe at this spot in the early stage of phthisis is one of the most constant features in the pathological anatomy of the disease, and its recognition is a matter of much importance, as in doubtful cases it is almost positive proof of the existence of tuberculous disease of the lungs. The lesion once established, tends to spread backwards towards the posterior border of the lung, and at the same time, laterally along the line of the interlobar septum, forming a doubly wedge-shaped area of infiltration gradually narrowing as it extends outwards. It follows from this that even in the early stages of the disease, in order to ascertain the extent of lung affected, we must examine the lower lobe, not only opposite the fifth dorsal spine, but also along the line of the interlobar septum. This line is roughly marked by the vertebral border of the scapula, when with the hand upon the spine of the opposite scapula the elbow is raised above the level of the shoulder.

The mode of extension towards the base of the lung is not usually by an advancing line of consolidation, but by scattered nodules of infiltration often arranged in a racemose manner. Even at the termination of a chronic case some healthy, or at least uninfiltrated, tissue will generally be found at the base even of the lung primarily affected. This freedom of the bases from phthisical lesions is another very marked feature in the pathological anatomy of the disease. In estimating the probability of any basic lesion being tuberculous in origin, it is important to observe whether the physical signs of disease in the lower lobe are continuous from its apex posteriorly, downwards to its base; if so the lesion is probably tuberculous. If the base be affected, but the apex of the lower lobe be free from disease, the basic lesion is either non-tuberculous, *e. g.*, due to œdema and collapse, followed by bronchiectasis, catarrhal pneumonia, or pleurisy, etc.; or if tuberculous, the resisting power of the base has been diminished by some previous affection, for example, an attack of pleurisy followed by partial collapse; but the presumption is strongly in favor of a non-tuberculous lesion. Occasionally, also, but very rarely, the whole of the lower lobe is destroyed, and the cavities in the upper and lower lobes uniting, owing to the

destruction of the septum, a large sac alone remains to represent what was once a lung. There is one other exception to the usual distribution of lesions in the lower lobe. It is that which a second cavity has formed near the middle of the lower lobe, the intervening area being but little affected.

Cases of apical phthisis with basic lesions are occasionally met with in which the basic disease, which was originally non-tuberculous, *e. g.* bronchiectasis following pleurisy and collapse, has had the tuberculous process engrafted on to it at a late period of the case. In such cases the usually smooth-walled bronchiectatic cavities will show distinct ulceration.

Treatment of Bright's Disease.

In a paper on acute Bright's disease read at a meeting of the Medical Society of New York, at Albany, Feb. 8, 1888, (*Medical Record*, Feb. 11, 1888), Prof. Francis Delafield gave the following brief statement of its treatment:

In that form of the disease characterized by changes in the cells alone, it does not seem probable that any treatment can be of avail. We are not possessed of any means by which we can affect acute morbid changes in the epithelium of the kidneys.

In exudative nephritis two separate sets of symptoms present themselves to us for treatment—those due to the nephritis, and those due to the complicating disturbances of the circulation. For the nephritis we naturally employ the same methods of treatment which are appropriate to an acute exudative inflammation in any part of the body; for the disturbances of the circulation we use the means by which we can regulate the action of the heart, and put a stop to contraction of the arteries.

In acute diffuse nephritis the problem of treatment becomes much more complicated. The inflammation of the kidneys may be, at the first, of an acute or of a sub-acute type; the complicated disturbances of the circulation are developed to a great degree; the long continuance of the disease has its effect on the entire nutrition of the patient; the character of the lesion is such that we hope for the alleviation of symptoms, and the prolongation of life, rather than for the cure of the patient. Now let me ask you to apply this classification of acute Bright's disease to your own cases.

1. You have seen primary cases which gave well-marked renal symptoms for days or weeks, and then recovered completely, with the exception of a few very severe cases, which terminated fatally. These were examples of exudative nephritis.

2. With scarlatina and diphtheria, with pneumonia, with typhoid fever, with many of the infectious diseases and of the acute inflammations you have often found albumin and casts in the urine, but no other symptoms. These were examples of mild exudative or of parenchymatous nephritis.

3. You have seen women, in the latter months of pregnancy, with albumin and casts in the urine, sometimes with dropsy, sometimes with cerebral symptoms. You have found that if the patients survive their immediate danger that most of them have no further kidney trouble, but that a few will, later, give the evidences of a chronic nephritis. This means that these patients have suffered from more or less severe forms of exudative nephritis or from diffuse nephritis.

4. You have seen primary cases which began with headache, nausea, anæmia, dropsy, and albumin and casts in the urine, which went on for months or years, sometimes better, sometimes worse, until they died of their disease. These patients had diffuse nephritis.

5. You have seen diphtheria or scarlatina followed for months and years by renal symptoms. This again means a diffuse nephritis.

So, no matter what names are used, I believe that we can group all the cases of acute Bright's disease into three classes:

1. In which the principal share in the morbid process is taken by the blood-vessels, and in which the principal evidences of the inflammation are the matters exuded from the blood-vessels.

Such a nephritis varies as to its severity and its fatality, but is regularly only a temporary lesion.

2. One in which the principal share in the morbid process is taken by the renal epithelium, and in which the evidences of inflammation are certain changes in these epithelial cells.

Such a nephritis is regularly secondary to other diseases, and does not give constitutional symptoms.

3. One in which the principal share in the morbid process is taken by the stroma, and in which the evidences of inflammation are permanent connective tissue in the stroma, with, in addition, the lesions of exudative nephritis.

Such a nephritis is regularly a permanent and progressive lesion, and is attended with well-marked constitutional symptoms.

Hysteria and Hystero-Epilepsy in Soldiers.

Dr. Janssen gives an account, in the *Weekblad van het Nederlandisch Tijdschrift voor Geneeskunde*, of several cases of hysteria and hystero-epilepsy occurring amongst Dutch soldiers. In one of the latter class of cases occurring in a man of 21, who had come of a highly neurotic family, where there were several attacks during the day characterized by semi-consciousness, extremely rapid respiration, abdominal tenderness, coldness of the extremities, with cold sweating, pulsation of the carotids and other arteries, opisthotonos, and convulsive spasms of the extremities, Dr. Janssen found that the attacks could be arrested by exerting firm and deep pressure with the closed hand on the left iliac region, or by a powerful induced current. The surface of the body was anæsthetic, and if the skin were lightly pricked with a pin, not only did the man not cry out, but no blood appeared. Various anti-epileptic and anti-hysterical remedies were tried without benefit. Different metals were applied to the surface of the forearm, but the only one which produced any effect was silver, which left a red mark. This induced Dr. Janssen to prescribe nitrate of silver for internal use, and this produced a great improvement in the patient. In another case there was aphonia and aphasia, the lad being able to understand what was said to him, and to read and write, but not to speak—an example of Charcot's hysterical mutism. Treatment produced no effect on this patient, and he had to be discharged from the army.—*Brit. Med. Journal.*, Nov. 12, 1887.

Treatment of Severe Endocarditis.

DR. A. ERNEST SANSOM, Physician to the London Hospital, in a communication to the *Practitioner*, Jan., 1888, refers to a former communication of his to the same journal, in which he narrated the case—so far as he had opportunity of observing it—of a female patient, aged twenty, who manifested signs leading him to the diagnosis of severe endocarditis aberrant from the rheumatic form. He then said that the endocarditis was probably ulcerative. It affected the mitral valve, inducing a slight regurgitation, and then after a period of several weeks involved the aortic orifice, rendering the valves in some degree incompetent. In this case no treatment seemed of any avail until he put in force an antiseptic plan, administering thirty-grain doses thrice daily of sulphocarbolate of sodium, and causing the inunction freely into the chest and back of carbolized oil in the proportion of one part of carbolic acid in four parts of olive oil. Under these conditions the patient improved in a manner little short of extraordinary. There was gain of weight to the extent of sixteen pounds; the patient was discharged from the London Hospital with no subjective symptoms; a systolic murmur very slightly marked continued to be audible at the apex; the diastolic murmur previously manifest at the base was scarcely to be heard at all; and the outline of the heart appeared to be normal.

The sequel of this case seems to him to offer points of interest and value. The patient returned to her home on January 4, 1886, but presented herself again at the end of October, nearly ten months after her discharge from the hospital, and was admitted an out-patient on November 9, 1886. She complained of pain in the right leg (with no discoverable swelling nor other obvious association), and pain and distress referred to the region of the heart. She suffered much from difficulty of breathing. Pain at epigastrium was manifested directly after food, and there was want of appetite; insomnia was very marked, and the patient complained much of headache. She gave a history of sore throat which had occurred a fortnight previously, but there were no notable signs about the tonsils. Physical examination of the heart showed that there had been great changes from the satisfactory conditions which had been noted ten months before. The outline of præcordial dulness extended four centimeters to the right of the middle line of the sternum, and the dulness towards the left to ten centimeters from the mid-sternal line at the level of the nipple. The outline indicated a considerable dilatation of both sides of the heart, but disproportionately of the right cavities. A systolic murmur was heard at the apex, and systolic and diastolic murmurs were manifest at the base, the diastolic being conducted down the left border of the sternum as far as the level of the fifth rib. The pulse was irregular, of very low tension and much influenced by respiration, marked and irregular undulations of the base line being observable in the sphygmograms. The temperature varied only between 98° and 99° F.

As it appeared to Dr. Sansom that the greatly dilated right chambers of the heart offered the chief impediment to respiration he ordered six leeches to the præcordium. Liquid extract of convallaria in twenty-minim doses was administered three times a day, and mixture of ammonia and ether at frequent intervals, according to the severity of the dyspnœa. There was no improvement; the irritability of the stomach increased; vomiting occurred very frequently. Fifteen

minim doses of tincture of digitalis with fifteen grains of citrate of potassium in decoction of broom were substituted for the convallaria on November 13, and on the 17th the patient expressed herself as feeling a little better. Breathing was still however very laborious and the distension of the right chamber remained just as before. The leeches were therefore repeated. On the 19th vomiting returned. The pulse was ninety-six, of low tension, the base line of the sphygmogram showing marked and irregular undulation. The temperature had never risen above 100.8° F., and now varied only between 99° and 100° F. He could not realize that septic endocarditis was in active progress, but considered rather that the distress was the consequence of the feeble heart whose cavities were dilated. As the attempts to give tone to the cardiac muscle were unavailing, he began on the 24th the treatment by half-drachm doses of sulphocarbolate of sodium every four hours. No signs of amendment however followed, and the patient died on November 26.

At the autopsy, the *lungs* were found congested and indurated in all parts except the apices. The *liver*, *spleen*, and *kidneys* were congested and firm. The *heart* was found enlarged in all its cavities and the pericardium was adherent everywhere. The myocardium was flaccid. Coagula, some black and some decolorized, were found in all the cavities, a large mass being in the left auricle. The mitral orifice admitted three fingers. The mitral and tricuspid curtains were adherent at their borders. The edges of the mitral, tricuspid, and aortic valves were thickened, and granulations, evidently recent, were studded along the lines of closure of all of them. One of the cusps of the aortic valve presented a depression caused by loss of its tissue over a small area—it was a slight erosion which involved only a very small portion of the semilune.

Dr. James Anderson made sections and gave the following report:—

"A section of the vegetation shows at its base well-organized fibro-cellular tissue with a few groups of leucocytes enclosed. On the surface is a layer varying in thickness, consisting of fibrin and leucocytes. Covering this and at points penetrating into it among the cells is a layer of micrococci, the organisms nowhere, however, penetrating the older inflammatory tissue. On the surface they form mostly a homogeneous layer, but at points they have a globular arrangement, and at one point there appears to be distinct loss of tissue. Attached loosely to the surface are masses of micrococci possibly detached in sections."

The proof was thus afforded that the former diagnosis was correct, and that this was a case of what Dr. Sansom has termed *grave* or *severe* endocarditis, having nothing in common with the rheumatic form of the disease. There was none of the thickening of the mitral curtains, nor any pathway of inflammatory change traversing the endocardium of the left ventricle and leading to the aortic cusps; but the valves, not thicker than normal, were studded with small, and some very minute vegetations. It is seen that endocarditis may be septic, but not necessarily ulcerative. The vegetations were crowded with micrococci, but only over a small portion of one of the aortic cusps was there ulceration with distinct loss of tissue. The case afforded another example to be added to one which the author formerly recorded, that endocarditis of the form known as ulcerative, can arise and progress without either notable rise or marked fluctuation of the body

temperature. At the time of extreme danger, in the earlier period of the case, the maximum temperature was only 101.4° F., and the variations were between this and 99° F. And when, according to precise observation, septic endocarditis was in active progress, the maximum was only 100.8° F.

The case illustrates the difficulties of diagnosis. The author had, on the patient's re-admission, abundant evidence that the right cavities of the heart were greatly dilated, but he looked upon this dilatation as the consequence of the mitral yielding, the old affection having become chronic. As was found at the autopsy, the disease was of the nature of an eruption which involved the right cavities as well as those of the left, such eruption being constituted by little vegetations fringing the free edges of the valves, and these in distinct association with micrococci. This having been demonstrated, it may be asked what could be the mode and channel of entry of these micro-organisms into the blood and the tissues? There were no foci of suppuration nor probable origin of *staphylococci* or *streptococci* which in some cases of ulcerative endocarditis have been shown to be the agents of destruction. There was, however, an association which may throw light on the question. Physical examination of this patient when she was first admitted—on September 23, 1885—disclosed limited pneumonia in the base of the left lung, and for a week before admission there had been some hæmoptysis.

Dr. Netter, of Paris[1], has collected a series of eighty-two cases wherein endocarditis has been recorded in distinct relation with pneumonia. Since Bouillaud, in 1835, many observers had noticed such relation, but Heschl, Klebs, Colomiati, Osler, of Philadelphia, and Gulliver, amongst others, have been precise on this point. An analysis of the cases recorded by Dr. Netter shows that the lesions of the form of endocarditis which is associated with pneumonia, may involve the valves of both sides of the heart. The aortic orifice was implicated in thirty-nine cases —exclusively in twenty-nine, principally in ten; the mitral orifice was involved in twenty-four cases—exclusively in twenty, and principally in four. In "malignant" endocarditis generally, Osler's statistics give sixty-seven mitral lesions to fifty-three aortic. It would therefore appear that in pneumonic endocarditis the tendency to involve the aortic valves is greater than in the other forms. The right chambers were implicated in twelve cases, the tricuspid valve in five, the pulmonic in five, and the right auricle in two.

In the present case there was no reason to believe that valvular disease had existed previously to the illness for which the patient was under observation. In severe endocarditis in general, anterior valvular disease has been shown to exist in three-fourths of the cases. Netter considers that in pneumonic endocarditis, previous valvular disease did not exist in half the cases.

According, therefore, to a considerable amount of evidence, pneumonic endocarditis has a nosological existence and a definite clinical history. As to the probable pathogenesis, Dr. Sansom says: Netter states that he has found in seven instances in the vegetations of endocarditis consecutive to pneumonia, "the same microbes as in pneumonia itself." These, obtained by scraping a vegetation, are said to be "lanceolate, lozenge-shaped, generally united in pairs,

[1] "De l'Endocardite Végétante-ulcéreuse d'Origine pneumonique," par le Dr. Netter, Chef de Clinique médicale à la Pitié, Medaille d'or des Hôpitaux. *Archives de Physiologie*, 1886, p. 106.

and surrounded by a capsule, which, according to the mode of preparation, is colorless, like a sort of glistening halo, or is colored of a paler hue than that of the microbe itself. These characters are precisely those of the microbe of pneumonia." Dr. Netter, from experiments on animals, concluded that the micro-organism obtained from a vegetation, in a case of endocarditis associated with pneumonia, was capable, when injected into the pleuræ of certain animals (rabbit, guinea-pig, mouse), of setting up pleuro-pneumonia with, in some cases, pericarditis and peritonitis. Further, pneumo-cocci were injected into the lungs of rabbits whose cardiac valves had been experimentally irritated, endocarditis of the vegetating form was set up.

Evidence is adduced to show that in some cases of pneumonia, micrococci are to be found in the blood during life. Friedländer and Talamon have made such observations. Dr. Netter claims to have demonstrated the presence of the pneumo-coccus in two cases of pneumonia, one of these being accompanied by endocarditis with vegetations fringing the tricuspid valve. It would be a reasonable conclusion, therefore, that the intermediary between the area of pneumonia, the seat of primary infection, and the endocardium is the blood. This accords with other observations in various forms of so-called malignant or ulcerative endocarditis; for Dr. Byrom Bramwell[1] has beautifully demonstrated micrococci in a case wherein exuberant vegetations covered the aortic cusps, not only in these vegetations, but in portions of the kidneys, in the membranes of the brain and the cortex, in the choroid coat of the eye, in the skin, and in the testis. Dr. Sansom remarks that it will be probably considered a reasonable hypothesis that the strange mental condition, the extreme prostration and hebetude of his patient in the earlier portion of the history of her malady, were due to the influence of the microbes upon her nerve-centres. It is notable that in a large proportion of the cases—forty-five in sixty-three—meningitis co-exists with pneumonic endocarditis.

The most interesting question illustrated by these cases, however, is the therapeutic one. It can hardly be a matter of doubt that the malady in the earlier part of the history of the case was identically of the same nature as that in the later periods. The extreme feebleness of the heart-muscle, the appearance of intra-cardiac murmurs first (systolic) in the mitral and then (diastolic) in the aortic area could not be attributed with any probability to a cause other than an endocarditis and myocarditis, with or without pericarditis, of like nature with that demonstrated at the autopsy. This disease, which strong evidence shows to be due to a blood infection, was in active progress until an agent having a powerfully toxic effect upon low organisms was administered. Then, after a period during which the blood and tissues could be sufficiently charged with such agent, the disease appeared to be arrested. An extraordinary evidence of such arrest appeared to be afforded by the condition of the aortic valve at the site of its limited erosion. This seemed to suggest most forcibly that the progress of ulceration had been by some means stayed. It is notable that the

[1] *On Ulcerative Endocarditis*, by Byrom Bramwell, M. D., F. R. C. P., Edin., &c., &c.; with a *Report of Cultivation and Inoculation Experiments*, by A. W. Hare, Assistant to the Professor of Surgery in the University of Edinburgh: *The International Journal of Medical Sciences*, July, 1886, p. 17.

micrococci nowhere penetrated the older inflammatory tissue, whilst they were abundant in that which was recent.

On the use of Strychnine as a Hypnotic.

Dr. T. Lauder Brunton, in the *Practitioner*, January, 1888, says: Quiet sleep usually comes readily and quickly to any healthy person who is tired, but not over-tired, with bodily or mental work. But as too many know, there is a condition of excessive fatigue, either bodily or mental, and more especially of that fatigue which follows intense mental strain or worry, which prevents the unhappy sufferer from obtaining the rest and refreshment by sleep of which he stands so greatly in need. The treatment of such cases is very difficult. The use of opium or other narcotics is objectionable, not only because it may tend to induce that dreadful condition, the opium habit, but because it frequently happens that the sufferer from sleeplessness is obliged to have all his faculties clear and all his wits about him in order to get through his daily work. The administration of opiates at night tends in many people to produce a certain amount of dulness through the day, which would render the use of these drugs inadmissible, even if there were no other objection to their use.

Chloral is not so objectionable on this account, as it may induce sleep without in the least obscuring the mental faculties next day, but the use of chloral also is objectionable both because of the tendency to the formation of a chloral habit, and because its long continued use may have a weakening action on the heart and also a deleterious action on the brain. I have seen at least one case in which the continued use of chloral appeared to induce mania, which began to improve as soon as the patient was removed to an asylum and cut off from the use of the drug.

Bromide of potassium is probably the least objectionable of all, but in many cases of overwork it seems to lose entirely, or almost entirely, its hypnotic action.

In treating some cases of persons engaged in literary work who were suffering from sleeplessness and yet were obliged to have their brains perfectly clear during the day, it occurred to me that if I could convert the condition of over-tiredness into a condition of simple tiredness, the patient would naturally fall sound asleep without the use of any hypnotic. One can sometimes do this to a certain extent by giving some warm beef-tea or a teaspoonful of Valentine's meat juice in water either hot or cold, or by giving a little alcoholic stimulant, such as whisky and water or brandy and water. It is probable that these substances have a double action, tending to dilate the vessels of the stomach and withdrawing blood from the head, as well as tending to exert what we may vaguely term a stimulant action on the nervous tissues themselves, without understanding what the exact nature of this stimulant action is. It occurred to me that as strychnine is one of the most powerful stimulants, if not the most powerful nervous stimulant that we possess, a small dose of it might have the effect of bringing the depressed nervous system up from the condition of over-fatigue to that of simple fatigue, and thus inducing sleep. I accordingly tried it, and was much pleased with the result. It acted exactly in the manner that I expected, and induced comfortable healthy sleep without any disagreeable effects next day.

The way in which I have used it has generally been either in the form of the tincture of nux vomica in doses of 5 to 10 minims or in the form of Schieffelin's granules, containing $\frac{1}{100}$ of a grain of sulphate of strychnine in each. One, two, or more of these granules were given at bedtime, and the dose was repeated if the patient happened to awake within one or two hours afterwards.

I think it is very doubtful indeed whether strychnine would answer in other cases of sleeplessness than those arising from overwork or worry, and more especially from overwork. I have tried it, however, in a case of sleeplessness occurring in anæmia, but as the patient at her next visit complained that the medicine made her sleep rather too heavily, I am not quite sure how far mere suggestion may have played a part in effecting the result, nor have I been able as yet completely to eliminate this factor in other cases. The results which strychnine has yielded in my hands being so good, and the condition for which I have used it being so distressing, I have thought it worth while to mention its use as a means of affording sleep in order that others may try it as well as myself, and may, I hope, obtain from it equally good results; although it only too frequently happens that a drug seems to prove very much more effective in the hands of the man who first employs it than of those who try it afterwards.

Examination of Semen.

Dr. F. L. James says: In the examination of semen with the view of determining its virility we must search:— 1. For the presence of spermatozoa; 2. Their relative number, size and activity; 3. The relative vitality of the element under consideration.

There may be, and no doubt are, other elements in the problem, but if os, modern physiological investigation has not pointed them out with sufficient exactness to make it worth while for us to spend time over the discussion. Indeed, to a very large extent the entire matter is one of speculation, with this one fact pretty well established, viz.: the spermatozoa constitute an essential element of fecundation. Fortunately, there is no especial technical manipulation necessary to make the presence of the seminal filaments visible. Their relative number and activity is a different matter. The amount of semen ejaculated in coition depends upon the age of the patient, his condition of health, and the frequency of coition. Commencing with puberty, prior to which they do not appear in the discharge, the numbers rapidly reach a maximum, and from this climax until the decline of the vital powers from age, they (in health) do not appear to vary to any great extent. The sum total, so far as computation is concerned, in normal semen, is practically indeterminable, since the amount of the seminal fluid itself varies from 10 to 15 minims up to ten times so much.

The size of the cells, which is supposed to have a value in the determination of the procreative power, is another variable quantity which must be taken into consideration, but only when the average is below the usual normal size. The activity of the cells,—their rate of motion (which latter is the cause of their having been, up to comparatively recent times, considered as organisms enjoying life independent of the body to which they belong, or in other words, individual organisms) is more easy to establish. The forward movement has been closely studied by several competent observers—Hensen, Lott, De Sinéty, Henle,

Bizzozero, Kehrer, Beigel and Valette having made large numbers of measurements. The estimates vary within certain minute limits only, and even this variation may be accounted for by the erratic nature of the motion—this being due to the obstructions met by them (epithelial cells, etc.) Lott estimates the forward movement when obstructed to be about one-seventh of an inch per minute, while Henle places it at something less, viz.: two-seventeenths of an inch in the same length of time. This difference, small as it is, is easily accounted for by the differences occurring in the fluid portion of the secretion, which is made up of a number of secretions not properly belonging to semen. A curious fact may here be mentioned in this connection, and that is that spermatozoa, removed directly from the testicles have scarcely any proper motion, probably from the very fact of lack of dilution of the fluid medium with which they are surrounded.

The duration of movement, and consequently of life, is a point concerning which considerable light has been thrown within the past two or three years, and an apparent paradox has been developed in the research. Semen placed on the life, or warm slide of the microscope, has been watched by many observers, and I have seen a few individual spermatozoa moving their caudal extremity vigorously, although without forward motion, as long as twenty-four hours after placing them there. The average duration of movement, however, at the temperature of the human body, is from 4 to 6 hours. Dr. R. N. Reynolds, of Detroit, Mich., in a paper in the *Microscope* for Aug., 1886 (p. 196), states that when a test-tube containing semen is sunk into a block of ice, the spermatozoa may be kept in active motion for forty-eight hours or more. Mantegazza states that he has submitted semen to a refrigeration of 10° C. and that the spermatozoa showed signs of virility for six days thereafter.

Should it be desired to stain the spermatozoa, an aqueous solution of eosin will do so in a beautiful manner. A double stain may be obtained by using methyl green after the eosin staining. This leaves the "head" stained with eosin, the green taking only on the tails. For isolating them for mounting, an excellent method is that reported by Dr. Reynolds, viz.: filtering the stained spermatozoa directly from the aqueous staining solution through a plug of absorbent cotton put into the neck of a small funnel. The greater portion of the spermatozoa remain in the cotton, but many thousands pass through, and can be removed from the watch-glass by a pipette and mounted in either glycerin or balsam.—*St. Louis Med. and Surg. Journal*, February, 1888.

Multiple Neuritis following Diphtheria.

At the meeting of the New York Clinical Society, December 23, 1887, Dr. L. Emmett Holt presented two children of the same family, illustrating diphtheria in some of its more unusual manifestations. The first patient was a little girl, two years old, who had been under observation about three weeks. When she was first seen, the deformity of the spine was such as at first to lead to the suspicion that she might be suffering from Pott's disease of the cervical region. There was a very marked kyphosis extending from the fourth cervical to the second dorsal vertebra, and a compensatory lordosis of the lower part of the spine. The chin rested against the sternum. The usual rigidity was absent, yet the parts were quite tender upon handling, and the girl was said to have cried much recently

with pains about the neck. There was a smooth, nodular, bony prominence felt in the pharynx. The child had fallen down stairs, striking her head, about two months before. The friend who brought the child could give no clear history of the development of the symptoms. At the next visit it was learned from the mother that the patient had had diphtheria in August, but had escaped without complications or nervous sequelæ. About the middle of October she had a second attack, having taken the disease from a brother. This was tedious but not severe, and convalescence was slow. Except a nasal noise, no nervous symptoms appeared until about December 1, when she was no longer able to hold her head up; this condition developed quite rapidly and was accompanied by severe pains in the neck. The gait had become somewhat unsteady. There was discovered at this examination well-marked ataxia. It was with considerable difficulty that the patient's equilibrium was maintained in walking. The gait was like that of one intoxicated, the body swaying; and falls were frequent. The pupils were normal, and there was slight convergent strabismus; the nasal twang to the voice had disappeared; the head could be slightly raised from the chest with difficulty; its habitual position was with the chin resting against the sternum. The muscles of the neck were very weak, and mobility was free in every direction. Pott's disease was positively excluded. No ataxia and no paralysis in the arms were present. The bowels were constipated; the pulse was full and regular; the general health was excellent; the knee-jerk was completely lost. An electrical examination a few days later showed good responses to a weak faradic current in the muscles of the upper extremities. In the lower extremities a much stronger current was required, and so much pain was caused that the examination was not altogether conclusive; nor were the galvanic tests satisfactory for the same reason. There was now very marked tenderness over the sciatic nerve and its main branches. The present condition of the child showed marked improvement. The head was held almost normally, and was still freely movable; the ataxia was scarcely perceptible, although there was some unsteadiness in the gait, from weakness apparently; the tenderness along the nerve-trunks was still acute, and the feet and legs seemed generally hyperæsthetic. The treatment had been with strychnine, first in combination with belladonna and afterward alone, in doses increased up to $\frac{1}{75}$ of a grain three times a day.

The second patient, a brother of the first one, five years old, also had diphtheria in October, the attack being one of moderate severity. Nasal voice was noticed soon after convalescence began, with an occasional regurgitation of fluids through the nose. A few weeks later convergent strabismus was observed, with dilatation of the pupils. He complained of "seeing double" occasionally. As these symptoms of the throat and eyes began to pass off, decided weakness in the lower extremities developed. This did not come on until the middle of December. There was now very marked paresis of the lower extremities; he walked fairly on the level for a short distance, but going up and down stairs without assistance was impossible. There was, as in the sister's case, marked tenderness along the sciatic nerve and its large branches. In the feet and legs there was no loss of tactile sensibility. There did, however, seem to be a diminished sensibility to pain, as a strong Faradic current could be comfortably borne upon the legs, while on the thighs and upper extremities it could not be tolerated. The knee and plantar

reflexes were abolished. There were good responses to a mild Faradic current in the muscles of the arms, one a little stronger was required for the thighs, still a stronger one for the anterior tibial group, while the calf group only responded to a very strong current. To galvanism good responses were obtained in all the muscles, but a strong current was required for the calf groups. There was no essential difference between the anodal and cathodal closure contractions. The pulse was regular and the general health good. He was also taking strychnine in $\frac{1}{15}$-grain doses three times daily. It was worthy of note that during the two weeks he had been taking the medicine his lower extremities had grown steadily worse. The improvement in the throat and eye symptoms had been progressing quite rapidly before any treatment was begun.—*New York Medical Journal*, Jan. 14, 1888.

Very early Syphilitic Headache.

At the meeting of the New York Clinical Society, December 23, 1887, Dr. CURTIS related a case of what was believed to be early syphilitic headache, although the history of syphilis was a little doubtful. The patient, aged about thirty-five, was infected by her husband with a sore, which was treated locally for two weeks in Charity Hospital, and she was there told that she had syphilis, but was given no medicine internally. The sore being cured, she left the hospital, and about that time began to suffer from headache, for which a few days later she sought the speaker's advice. There was severe pain all over the scalp, but the forehead was not affected; there was marked tenderness on pressure. There was no eruption, there were no enlarged glands, and there were no symptoms except headache, which was so severe as to interfere with sleep. Syphilis was thought of as the cause, but the speaker had never seen a case in which the headache had occurred so early after the presumable initial lesion. Remedies for the correction of indigestion proved of no avail, the headache grew worse, and, after five or six days had been passed without sleep, she was given the "mixed treatment," with $\frac{1}{12}$ of a grain of bichloride of mercury and 4 grains of iodide of potassium three times a day. No effect following, about the fourth day the dose of the bichloride was doubled, and within two days more the headache and the tenderness over the scalp disappeared. She continued to take the medicine about a week, and then left it off two or three days, when the headache returned, and tenderness developed over the forehead, and the bones of the face. There was closure of one eye from œdema, which lasted only a few hours. The headache was relieved by her resuming the use of bichloride of mercury. The speaker had still been in doubt regarding her having syphilis until about a week later, when characteristic syphilitic sore throat developed, a small sore appeared above the meatus urinarius, and two somewhat enlarged glands were found in the groin. The ulcer at the meatus had the appearance of a mucous patch. Infection was supposed to have taken place about six weeks before the appearance of the headache.—*New York Medical Journal*, Jan. 14, 1887.

Treatment of Pneumonia.

Dr. C. B. LEITNER, of Flora, Alabama, gives the following as his method of treating pneumonia, in a communication to the *Atlanta Med. and Surg. Journal*, January, 1888:

I take one-half ounce of ground senega root, this being the very best stimulating expectorant; ten or twelve grains of jaborandi, the best diaphoretic; and after adding to this twenty-four ounces of water, simmer (not boil) down to sixteen ounces. If it is below the measurement, add hot water until it amounts to sixteen ounces when strained. Add to this decoction two drachms of nitrate of potash, which is a good diuretic, and sixty (60) grains of quinine. Keep in an earthen pitcher or bowl. Dose, one tablespoonful every two hours until diaphoresis takes place. Be governed by the effects of the remedy in producing sweating.

In the first place, the patient's bowels should be moved freely with a mercurial purgative, such as calomel, or by rhubarb or ipecacuanha. In addition, counter irritation over the diseased part, by cupping and the use of the blister should be employed. If the patient is plethoric, let the cupping be very free. If the urine be scanty, I draw a large cup of buchu tea, giving a tablespoonful of it in combination with the expectorant or at intervals until that trouble is corrected. I use gum opium at night to produce sleep. There is another point which should be well watched, as it is deceptive; that is, acute pain in the thoracic pleura, as it may be remote from the inflammation of the lungs, and it flies from point to point if it be not permanent pleuro-pneumonia. Of course the blistering and cupping must include the point of pain on the thorax. I cannot, as you will observe, give directions as to how often the tea should be given, as the indications of the skin will be the monitor governing the intervals of giving and the quantity. When I find the skin cool and pleasant I have been accustomed to giving ammoniated julep, but good whisky or brandy has answered and will answer every purpose. Remember to be controlled by the use of the stethoscope. I use no arterial sedative unless the fever is very high and the skin very dry, then I use nothing but aconite; no veratrum.

The blister should be kept alive by applying a poultice of slippery elm and wheat-bran constantly. For convenience have two poultices; when one is on, the other can be laid for several hours in a little warm water, when the one can take the place of the other. Remember to give your patient rest at night with opium pills. I cannot too highly recommend this treatment, as it has seldom or never failed in my hands, notwithstanding the formidable character of the disease.

Case of Syphilitic Gumma Situated in the Trachea Successfully Treated by Large Doses of Iodide of Potassium.

Dr. Robert Lucas reports the following case in the *British Medical Journal*, Dec. 24, 1887: A middle-aged woman, who had been married for seven years, but had no family, began, towards the end of August, 1886, to suffer from severe pain in the trachea, just below the larynx. She was troubled with dyspepsia from time to time, and had also a slight cough, and occasionally some expectoration. As her condition continued to get worse, she consulted him in the latter part of October. At that time her general health seemed to be fairly good, except that she was losing flesh, and beginning to feel weak from the pain and constant irritation in her windpipe. Gentle pressure on the trachea, in the region of the thyroid body, caused excessive pain—and, indeed, she could scarcely tolerate her clothing even to touch her throat at this point. The neighboring parts appeared to be exquisitely tender and painful.

She had contracted syphilis about eleven years before. So far as she recollected, her skin was covered with a red-looking rash; the palms of her hands were sore and cracked; she also had a sore throat, and her hair fell out to a certain extent. She was treated by a medical man in Edinburgh, who assured her she was cured; and certainly, up to the period of her present attack, she had enjoyed very good health. Early in November Dr. Lucas examined her with the laryngoscope, and discovered a tumor occupying almost the entire lumen of the trachea below the vocal cords, and apparently attached to its anterior wall. The growth was of a red color, but did not seem to be undergoing any kind of change. Thinking this condition must have some connection with her former syphilitic attack, he prescribed iodide of potassium in five-grain doses, and cod-liver oil. He also directed the patient to use an inhalation of creasote and morphine to allay the local distress. At this time there was no other manifestation of syphilis, nor had there ever been in this case, except at the period already alluded to.

This treatment was continued for about a month; but little or no change took place, except that the local pain was somewhat subdued. In the beginning of December the author sent the patient to Edinburgh to see Dr. McBride, who carefully examined the trachea, and pronounced the tumor undoubtedly a gumma. At this time it presented a cheesy appearance in its centre, and reminded one of a gumma, such as is met with in the palate and elsewhere just before the rapid breaking down takes place. Dr. McBride advised the continuance of the iodide of potassium, but in large and increasing doses. Accordingly fifteen grains were prescribed to be taken thrice daily. This was continued until the end of the year, and in the first week of the present year Dr. Lucas increased the dose to twenty grains three times a day, and continued this almost to the end of January. As the patient now was in a wretchedly cachectic state from the iodide, he thought it prudent to withdraw the drug, and this was done.

He states that almost from the date of the increased dose of the iodide the local symptoms began to improve; the pain and irritation ceased soon after. By the time the iodide was discontinued the tumor had disappeared. In the end of January he again sent the patient to see Dr. McBride, who wrote him that "a very slight narrowing of the lumen of the trachea, with somewhat marked whitening of the anterior wall, corresponding to the two first rings, the probable seat of the origin of the growth, was all that could be observed."

Gummatous tumors of the trachea are extremely rare, and this case is all the more striking because of the entire absence of any other manifestation of syphilis, either in the throat or body. Dr. Semon has recorded a case, (*St. Thomas's Hospital Reports*, vol. xiii), which, in respect to the laryngoscopic appearances, presented marked similarity to the one here described, but there was in addition evidence of tertiary syphilis in the hard and soft palate. There cannot be a doubt as to the nature of the case under consideration; it was undoubtedly one of gummatous tumor of the trachea just on the point of breaking down. Had ulceration been allowed to occur, the administration of iodide of potassium would have caused cicatrization, and this would inevitably have been followed by stricture. The patient is now perfectly well and strong.

Compression of the Vertebral Artery in Relation to Pulsating Tinnitus Aurium.

Dr. Dundas Grant, surgeon to the Central London Throat and Ear Hospital, says: "In the discussion on tinnitus aurium at the Dublin Meeting of the British Medical Association last August, reference was made by Mr. Lennox Browne to an observation described by me in a paper on pulsating tinnitus before the Otological Subsection, at the meeting at Brighton in August, 1886. In view of the interest expressed by those to whom I have communicated it, I am anxious to place it before the readers of the *Journal*.

The fact is well known that the arterial supply of the labyrinth comes by the internal auditory artery from the basilar, which is the continuation of the conjoined vertebrals. It follows from this that if pulsating tinnitus is, as described by Woakes and others, the result of labyrinthine congestion, it ought to be checked by pressure on the vertebral arteries. By pressure, exerted by means of the thumb and finger in the hollows behind the mastoids and the transverse processes of the atlas (corresponding to the space bounded by the rectus capitis posticus major, the obliquus superior, and the obliquus inferior on each side) I found I could check *pulsating* tinnitus in a large number of cases. In order to make sure that my pressure really acted on the vertebral artery, I took the opportunity afforded me by the kindness of Dr. Charlewood Turner, of testing the fact on the dead body under his observation. Water was forced through the vertebral artery from below by means of a syringe, and we found that its *outflow through the cut end of the basilar was completely stopped when I exercised pressure as I have described.* It is easy to find the exact points on which to exercise pressure on any patient suffering from tinnitus from salycin or quinine.

I employ this process as one means of diagnosing cases of labyrinthine congestion, in which I agree with Woakes (of whose views this experiment is the natural sequel) in believing hydrobromic acid a valuable remedy, but I do not believe it better than the potassium, sodium, or ammonium salts of that acid, and in fact I prefer, as a rule, the salts either singly or combined. Therapeutically the "vertebrarterial" pressure may be employed as a temporary palliative capable of giving relief of some duration even after removal of the pressure, and in order to keep up the pressure for a lengthened period I have several times used pyramidal pads of cork wrapped in lint and pressed into the hollows by means of a strap or tourniquet passing round the forehead.

I venture to hope that the process will be found to be valuable, and I look forward with interest to its being fairly tested and frankly judged."—*British Medical Journal*, Dec. 24, 1887.

Pulmonary Consumption.

Phthisis pulmonalis is a ubiquitous disease; wherever human beings are congregated together it makes its appearance, the mortality produced by it increases as populations take more to an indoor life; it spreads especially in ill-ventilated work-shops and tenement houses. These facts fit in well with the theory that it is a contagious disease, communicated directly from man to man. But it is possible to attach too much weight to facts of this order; Dr. Ransome, in his address to the Sanitary Institute, reviewed the whole subject from the

standpoint that the bacillus tuberculosis is the determining agent which gives to tuberculosis its peculiar and specific characters. While the bacillus must therefore be regarded as the most important ingredient of foul air, we must carefully guard ourselves from assuming that it is the only essential factor, and *a fortiori*, that it is necessarily transferred direct from one individual to another, either by the breath, or by dried and pulverized sputum. The striking influence of damp soil gives reason for reflection, and it is conceivable that we have to do with a microphyte which has two phases in its life history, one of which must be passed outside the body; it can exist and even flourish in putrid fluids, and it may find a nidus outside the body in the organic matter contained in the breath (and perspiration). Attention to ordinary sanitary laws has availed to diminish mortality to a very remarkable extent; this diminution, in England and Wales, has amounted to about 28 per cent. in a quarter of a century. In devising measures still further to diminish the prevalence of pulmonary consumption, attention must also be given to the influence of heredity; the facts with regard to it cannot be denied, and they alone would suffice to show that the bacillus is only one of several agencies, the exact relative importance of which cannot at the present moment be estimated. But because the value, so to speak, of damp soil, injurious trades, crowded dwellings, heredity and other causes still less susceptible of precise definition, cannot be precisely set down, they must not be left out of the balance-sheet; were we to direct our care solely to the destruction of the bacillus, we should not be justified in the present position of affairs in expecting a balance in our favor. In combating the spread of the disease, therefore, we must direct our efforts against each condition which is known to be extensively present among those antecedent to consumption. That is to say, the sputum of phthisical patients must be disinfected, and the meat and milk supplies must be obtained from uncontaminated sources; intermarriage of phthisical persons must be discouraged; the laborers in factories must be placed under the best possible conditions, while at work, by the prevention of dust, overcrowding and cramped postures, the ventilation of dwellings in general must be rendered adequate, and impervious soils must be drained.—*Brit. Med. Journal*, Dec. 31, 1887.

The Relation of the Air we Breathe to Common Diseases.

Dr. Francis Henderson concludes a series of papers contributed to the *Glasgow Medical Journal*, with the following summary:

In the first part of the article we considered the extent and nature of the relationship between the air we breathe and our common diseases. Taking as the basis of our argument *The Vital Statistics of Glasgow*, we found it was there proved that house-accommodation, as a measure of air-space, is the chief factor in determining the death-rate. Confining attention to the common non-infectious diseases—namely, to those which are classified by name in the tables, we found it proved that the death-rate from these diseases is in direct ratio to the quality of the air—that as the air becomes impure from over-crowding and its concomitants, so does the death-rate rise, and *vice versâ*. The inference is, that the prevalence of these diseases is largely regulated by the amount of certain air ingredients which are therefore *in some sense* the material causes of these diseases. It was further shown, that this broad conclusion was, in the case of Glasgow,

not vitiated by the possibility of the material causes of diseases being conveyed into the system by the water supply, because that being uniform throughout the whole city, it could have no share in producing the different death-rates in the different districts. Again, it was argued, that neither did *predisposition* greatly affect this conclusion, because although its existence might be necessary to render these air ingredients capable of exciting disease, still. in so far as *predisposition* is not itself caused by the action of material causes, it must be regarded, in dealing with such large numbers, as affecting in a nearly equal degree, all the inhabitants of the compared districts of the city.*

Lastly, it was pointed out that (with the exception of the acute pulmonary diseases which in Glasgow are under special influences), all our common diseases decreased in equal proportion by the addition of purer air—that even in the best districts of Glasgow they maintained the same relative frequency to each other—that they were met with in the best country air, and that they reached a minimum of frequency in *extra*-pure air, pointing to the conclusion, that certain ingredients present in all ordinary air, which may minister to the well-being of the body in health, may become, in altered conditions, the material causes of our common diseases. Putting aside this last inference as raising questions requiring further elucidation, there remains the very important and comprehensive conclusion which we hold to be fully established, and which we desire to be fully weighed—viz., that the prevalence of our common diseases *cæteris paribus*, is in direct ratio to the amount of certain ingredients in the inspired air.

In the second part of this article we discussed the question, What are the constituents in the air which are chiefly concerned in the relationship between the air we breathe and our common diseases? The conclusions arrived at were—first, That it is the organic matter of the air which supplies the connecting link; second, That of the two kinds of organic matter, there can be little doubt that the living air particles are the essential material causes, although the dead organic products, when present in considerable amount, in all probability, by depressing the vital powers, promote the action of the organisms. The principal reasons for the conclu ion that the living air particles are essentially concerned in the production of these diseases are (1) That in some (at least two) of our common diseases the material causes have been isolated, and have been proved to be micro-organisms; (2) that in none of the common diseases has the material cause been demonstrated to be other than an organism; (3) that in nearly all, if not all, of the common diseases, organisms have already been found in the tissues. It must be admitted, of course, that their appearance is consequent upon some antecedent disorder or derangement, otherwise there would be no such thing as health; still, whenever they grow, they become at once the *causes* of symptoms and of pathological changes, and it is known that they (the organisms) appear at a very early stage in some of these diseases.

With regard to the dead organic matter, if present to a large amount, as in

* We may be underrating the influence of *predisposition* in causing the higher death-rate of insanitary districts, but it must not be overlooked that in these districts the bad effects of *hereditary* predisposition are much lessened by the great mortality of children under five years of age, whereby a large proportion of the constitutionally weak are carried off, and the comparatively robust remain to propagate the race.

the air of overcrowded houses, it may be supposed capable of having a poisonous influence. If so, we would expect its action to resemble that of an organic poison, such as opium or strychnine, if it were diffused through the air—that is to say, it would (allowing for idiosyncrasies) produce the same symptoms in all the persons exposed, according to the amount of poison inhaled and the age of the individual. If purer air were added to this poisoned atmosphere, the symptoms would diminish, and if further additions were made they would gradually cease. But this is not in the least a correct description of what is observed to be the effects of the impure air of overcrowded dwellings. Such an atmosphere invariably produces an abundant crop of all our common diseases—that is to say, it gives origin to a number of distinctly separate disease-entities, each of which is well known. The uniform production of such perfectly distinct and definite effects, necessarily implies the existence of differentiated causes. Now, consider what happens when a supply of purer air is added to this impure atmosphere. The number of cases is diminished, but the several diseases remain unchanged in character and unchanged in their relative frequency. These phenomena are easily intelligible, if the material causes of disease present in the air are *particulate*, and if each particle after its kind possesses individual and specific powers, but they are not explicable, as far as we can see, upon any other hypothesis. The addition of purer air does not alter the quality of the particles, but it lessens their number in a given measure of air, and their power depends on number. This is just what is observed in regard to the infectious diseases, the material causes of which are known or admitted to be, organized particles. Dilution with air or fluids (water or milk) limits their disease-producing power to the few—namely, to those most susceptible. The same principle appears to hold true in the behavior of some organisms. Thus, Watson Cheyne has found that the effects of the injection of the micrococci, which can cause suppuration, are greatly dependent upon the dose.*

Now, how does the proposition, that the unhealthiness of overcrowded houses is associated with the number of organisms, compare with the results of experimental investigations into the quality of the air of such places? It is consistent with these as far as they go. Prof. Carnelley, Mr. Haldane and Dr. Anderson, in their research found that as they passed from 4 roomed to 3, 2 and 1 roomed houses, there was an increase in the organic matter, and *more especially* of the micro-organisms, and a corresponding increase in the death-rate, together with a marked lowering of the mean age at death. Further, their experiments led to the conclusion that the amount of organic matter was chiefly due to influences contaminating the room at the time of observation. On the other hand, experiments showed that micro-organisms in the air of a room do not come, to any large extent, from the persons present at the time, and therefore they must come from the room itself. "Clean" houses were found to contain few organisms; "Dirty" houses, 3 to 5 times as many. Now, it is quite certain that the "clean" are the healthy and the "dirty" the unhealthy houses. If it may be assumed that *new houses*, taken in the mass, are comparatively healthy, and *old houses* comparatively unhealthy, then Miquel's microbic statistics exhibit micro-

* Report on a Study of Certain of the Conditions of Infection. *British Medical Journal*, July 31, 1886.

organisms and disease as close companions. His averages show that microbes in old houses in Paris are about eight times as numerous as in new houses.

This is the drift of the present experimental evidence, connecting prevalence of disease and numbers of micro-organisms.

As to the organic matter, the experiments hitherto made do not more exactly define its position. Professor Carnelley, Mr. Haldane, and Dr. Anderson, consider that it has a very great effect in lowering the general health and in predisposing to other diseases, but they do not find that a positive conclusion as to the influence of the separate constituents of contaminated air can as yet be arrived at from experiments.

In the absence, therefore, of experimental facts, the place and share of the living particles, and of the dead organic matter of the air must, for the present, be judged of on more general grounds. We have stated above what appears to us the chief reasons for the view that the material causes of our common diseases are the common organisms. These, however, we know, are not capable of growing in the tissues, unless the healthy vital resistance of the latter, is in some way interfered with. Now, as the dead organic matter when in considerable quantity, possesses the power of depressing vitality, it is reasonable to infer that its action will promote, and may even largely determine the growth of organisms. Thus, it appears that both organisms and organic matter are concerned in the production of disease in unhealthy houses. We do not know which of the two is the most important factor in the ordinary combinations of dirt and overcrowding; but the share contributed by each must vary. It will depend upon the relative amount of each operative in the particular case, because we know that the power of organisms, as well as of the organic matter, is a question of quantity. There is, however, this great difference. The organisms are essential to the development of the disease-process, whereas, the organic matter is not essential; for our common diseases occur in circumstances where it is impossible to suppose that the organic matter in the air can be present in effective quantity. Whatever disorders the proper working of the body, by disturbing the circulation, arresting the equable flow of nerve energy, altering the natural chemical condition of the tissues, etc.—results which may follow from the action of cold, from meteorological changes, from improper or insufficient food, from exhaustion of body, or anxiety of mind, etc.—may act *without* as well as with the depressing poison of organic matter inhaled, in determining the onset of disease, by enabling the organisms to grow and multiply in the tissues.

But again, it is clear that the opinion we form of the etiological significance of organisms, must be greatly influenced by the answer to the question which has been discussed elsewhere—Do common germs normally enter our bodies? If they do, which is the opinion we consider the balance of evidence favors, then it follows that in unhealthy houses a constant excess of these potent particles must pervade the system, and the risk of their growing and multiplying by the aid of comparatively weak determining causes must be intensified. These conditions will naturally tell most upon young children and delicate persons.

But, even if the other view be correct, that germs do *not* enter the body in health, it is proved that in consequence of slight departures from health, they

enter and grow, for they become visible in the tissues. Thus, in any case, organisms *may* grow at very early stages, and in point of fact this is known to occur in some diseases. Now, the appearance of organisms implies that there has been a struggle between the life of the tissues and the living invaders, in which the latter have been victorious, and, therefore, their antagonistic influence upon tissue life must considerably precede the period when they become recognizable in the tissues. These considerations indicate that the influence of organisms may come into play at a very early stage in the genesis of our common diseases.

There are many other questions bearing upon this important subject, but we fear that we have already more than exhausted the patience of our readers. The important conclusion, abundantly established by statistics, that the prevalence of our common diseases is largely dependent on the quality of the air, proves the *fact* of relationship; and we have attempted in this essay to show how the nature of the relationship may be explained in the light of recent knowledge regarding the constituents of the air and their several actions upon the body. We are well aware that much that has been brought forward is theoretical, and that many of the conclusions can only be regarded as provisional; but the article will have served some useful purpose, if it exhibits the points where facts are most needed to strengthen or to correct the argument, and if it induces others to examine the subject for themselves.

Etiology is a difficult and obscure study, and it cannot be wholly dissociated from theories and mere opinions; but it should not on that account be avoided. We can scarcely hope ever to understand fully the causation of disease; but the more attention the subject receives, and the more we practice the art of analysing complex and varied causal influences, the greater will be our success in estimating aright the share contributed by each of those factors we learn to recognize, and the more surely shall we lay the foundations of the scientific treatment of disease.

Prognosis in Valvular Lesions of the Heart.

In a paper read before the Chicago Pathological Society, December, 1887, Dr. Joseph M. Patton, of Chicago, says: The most interesting question in connection with cardiac valvular lesions, and one that requires the most accurate knowledge of the physical condition of the heart, and of the changes that have taken place, and of those which are yet to follow, is the question of prognosis. The incurability of organic disease of the heart, confines the management of these cases to one object, namely, how long can the heart be made to perform its function? To this end it is necessary that an intelligent prognosis be made, based on the following points: First. The seat of the lesion and its character. Second. The physical changes already effected by the lesion. Third. The histological changes resulting from these altered physical relations.

The careful study of these questions, and of the liability to further changes, both physical and pathological, in which any or all of the above-named conditions may be factors, will enable us to make a reliable and scientific prognosis. The effect of location on the prognosis depends on the time of life at which the trouble begins, and on the character of the lesion.

In early life the mitral valve is generally the one at fault, and the lesion is most often regurgitant. This is due to the fact that mitral disease in young

subjects is generally secondary to acute endocarditis, and to the high blood-pressure on the under side of these valves. The prognosis in these cases depends on the power of compensation, and is better in regurgitation than in stenosis. Mitral disease at middle life, or subsequent thereto, is generally secondary to some other form of cardiac disease, and the prognosis is bad. Disease of the aortic valves generally occurs in adult life, probably owing to the tendency toward inflammation of the aorta, immediately around the sinuses of Valsalva, during this period. The prognosis here is better in stenosis than in regurgitation, aside from the liability to cerebral embolism, which Niemeyer limits to cases of regurgitation. He thinks that embolism is not of very frequent occurrence, as he has met with only one instance, and that in a case of stenosis, occurring in a girl 12 to 14 years of age.

Second, as to the physical changes in the heart effected by the lesion. And in this connection cardiac hypertrophy is not to be considered as a diseased condition, but as the necessary and only remedy which Nature can give to a pump whose power is being overtaxed by reason of a faulty valve. In mitral regurgitation there is first dilatation of the left auricle, but this is generally slight, as the intra-auricular pressure is not very much augmented. The increased pressure in the pulmonary circulation is immediately relieved by hypertrophy of the right ventricle, which is a simple hypertrophy, and not eccentric, as is generally stated. When this compensation takes place the prognosis is good, and remains so until the hypertrophy becomes eccentric from degeneration of the right ventricle. The muscle being no longer able to withstand the increased intra-ventricular pressure, the prognosis then becomes grave. The increased pressure in the left auricle and pulmonary veins throws the blood into the left ventricle with more than usual force, hence there is slight dilatation and hypertrophy of this ventricle, which equalizes the arterial circulation. In some cases, complicated by extensive myocarditis, dilatation of the left auricle and ventricle, may be so rapid that the patient dies before compensatory hypertrophy can be obtained. In a recent case of this nature in a child 8 years old, the heart muscle was very weak from myocarditis. The patient was very anæmic; yet under treatment the improvement was very slow, but steady for several weeks, when, after taking a long walk and overtaxing the heart muscle, rapid dilatation took place and the child died in a week or ten days.

In mitral stenosis there is dilatation of the left auricle from the increased pressure necessary to force the blood through the constriction, and though the right heart compensates for the obstructed pulmonary circulation, the prognosis is rendered more grave than in regurgitation, because of the over-distension of the left auricle, which is but moderately supplied with muscular tissue, and is unable to withstand it.

In aortic disease the left ventricle furnishes the compensating power. In stenosis, its first effect is hypertrophy of the ventricle. This fully controls the interference with the blood current, and all goes well so long as the muscle retains its integrity. The prognosis at this stage is good, as a patient may remain in this condition for many years, totally ignorant of any cardiac trouble. Sooner or later muscular degeneration sets in, as evinced by ventricular dilatation, as the muscle is now no longer able to withstand the blood-pressure, and as

the dilatation becomes advanced the mitral ring is stretched, insufficiency of that valve results, and this gives an obstructed pulmonary circulation at a time when muscular degeneration prevents compensation by the right heart, therefore, as soon as mitral regurgitation occurs in these cases, the prognosis gets grave.

In aortic regurgitation the first effect is dilatation from the direct force of the reflex current impinging on the walls of the left ventricle while it is relaxed, also, from overdistension by the addition of the regurgitated blood to that normally received from the left auricle. This is followed by hypertrophy, which is eccentric. The prognosis at this stage is not as favorable as in the same stage of stenosis, that is, when compensation is obtained, for the reason that in stenosis when the hypertrophy has fully overcome the obstruction at the valve, it may remain stationary so long as there is no change at the valve, or in the integrity of the muscle, while in regurgitation the distending force is constantly present, and the hypertrophy must be progressive. It is for this reason that we find such immense left ventricles in some cases of aortic regurgitation. As soon as the hypertrophy fails to arrest the dilatation, mitral regurgitation ensues, as in stenosis, but is reached in much less time, as a rule, hence the prognosis is even more unfavorable than in the same stage of aortic stenosis.

The statement made by some authors that hypertrophy of the right heart in disease of the left side and of the left ventricle in aortic stenosis, is eccentric, the author believes to be erroneous. Niemeyer claims that simple hypertrophy is rare, and only obtained in such interference with the circulation as is given in Bright's disease or chronic asthma, or bronchitis. But Dr. Patton does not recognize any difference between the effect on the left ventricle from the increased vascular pressure in Bright's disease, and the effect on the right ventricle in pulmonary obstruction from mitral regurgitation, or on the left ventricle in aortic stenosis before degenerative changes begin.

The prognosis then, in a heart that has been hypertrophied, becomes grave with the appearance of symptoms indicating dilatation, for now it is a question of only a short time until asystolism of the heart is developed, and under such conditions the heart cannot long perform its function.

As to the danger of sudden death from organic disease of the heart, Dr. Patton does not believe this danger is sufficiently imminent to warrant us in placing it among the elements of an unfavorable prognosis. There is no influence of the heart, *per se*, tending to cause sudden cessation of its action. Cerebral embolism, it is true, may cause sudden death, but this, as already shown, is not frequent.

The formation of a ventricular clot from healthy blood is not possible, except when the heart has developed asystolism, in which case the prognosis is already rendered grave, because of the physical condition of the heart. He has never seen a sudden death from organic heart disease where the diagnosis was assured, and the cause of death referable to the heart. And were the actual cause known of the many sudden deaths which are laid at the door of this hard-working and long-suffering organ, he believes the vast majority would be found due to causes extraneous to the heart, probably some circulatory disturbance, or tissue degeneration of the nervous centres, causing a lack of proper innervation of the heart. The fact at least remains, that in organic disease of the heart sudden and unexpected death is a marked exception to the general termination, and if this

be true in diseased conditions, what cogent reason can be given for attributing sudden death to the heart, in persons who have never given any evidence of cardiac disease.

From the foregoing he derives the following conclusions:

The prognosis, when compensation is obtained, is better in aortic stenosis and in mitral regurgitation than in aortic regurgitation, or mitral stenosis. A person with either of the former lesions, moderately severe and fully compensated for, may live 20 or 30 years and suffer no inconvenience therefrom.

In aortic stenosis intercurrent disease of the lungs is not so dangerous as in mitral regurgitation, hence the prognosis in the former is somewhat better.

In aortic regurgitation, and in mitral stenosis, the prognosis is not so good, because the eccentric hypertrophy in the former, and the dilatation of the left auricle in the latter, renders perfect compensation difficult.

The more pronounced the lesion the more grave the prognosis, in direct proportion to the increase in intra-cardiac pressure.

Double lesions at one valve, or two distinct lesions at different valves, which have begun at the same time, render the prognosis grave in direct proportion to the increased liability to dilatation of the different cavities.—*Journal of the Am. Med. Association*, Feb. 11, 1888.

Treatment of Rheumatic Disease of the Aortic Valves.

Dr. Arthur Ernest Sansom, who is well known as one of the most accurate and thorough students of diseases of the heart, discusses the treatment of some of the forms of aortic valvular disease in the *Lancet*, Dec. 24, 1887. After stating his appreciation of the scientific method of investigating the therapeutic usefulness of various heart remedies, he declares that the clinical method is the one upon which we must chiefly rely for practical purposes. This method he has already applied to the study of diseases of the mitral orifice. In taking up the study of diseases of the aortic outlet he excludes, from the present study, aneurism or any external condition which may affect the vessel. To facilitate study, he classifies the forms of aortic disease as (1) Rheumatic, (2) Atheromatous, (3) Traumatic, and (4) Septic or Ulcerative. He finds that the *prima facie* chances whether the diseased conditions proceed from rheumatism or from the endarteritis which leads to atheroma, are about equal. But rheumatic endocarditis is especially a disease of early life, while atheroma is an affection of the later periods. In 173 cases of all forms of cardiac disease affecting children under twelve years of age, he found the aortic orifice involved in 16, of which number 14 were associated with acute or sub-acute rheumatism or slighter forms of articular pain; while in the two remaining cases, the affection appeared to him to be in definite relation with measles. In the present paper he studies only the rheumatic form of aortic valvular disease.

For practical purposes of therapeutics, he divides those patients who apply for treatment for aortic valvular disease which is considered due to rheumatism, into two categories: in the first there are no symptoms referable to the heart and circulation, and in the other there are such symptoms. As an illustration of the former class, he reports the case of a young man seventeen years old, who consulted him for incontinence of urine. There was not the slightest

complaint of any symptom to be referred to disorder of circulation or respiration, and yet he found a loud diastolic murmur of aortic regurgitation, with the heaving impulse of a considerably hypertrophied left ventricle. In such cases as these, Dr. Sansom thinks "we may say with confidence, that all forms of heart tonics, all drugs whose action it is to enhance the force of ventricular systole, are positively hurtful." "It may be well," he adds, "at some periods to regulate the digestive powers, and perhaps administer such general tonics as iron, strychnia, or arsenic, but any agent which alters the rhythm of the heart should be withheld." Treatment should be directed to preventing a recurrence of rheumatism.

Pain in mitral regurgitation, though it may exist, is in his experience not a very marked and notable, and not a very early symptom. On the other hand, in rheumatic disease of the aortic valves, without disease of the mitral, pain and distress directly referred to the heart are marked and notable symptoms. In some instances, he has seen the pain to amount to attacks of true angina pectoris. The author also expresses the opinion that it is in the rheumatic forms of aortic disease, rather than in the atheromatous, that we find examples of very free regurgitation. He then discusses the question of administering digitalis in rheumatic disease of the aortic valves, and reports three cases in point. In the first case, a patient manifested a systolic and diastolic murmur at the base, with systolic murmur at the apex and signs of considerable cardiac hypertrophy, but evidence of ill compensation afforded by the gradual on-come of œdema and dyspnœa; the temperature being then slightly subnormal. Four minims of tincture of digitalis were given in the ordinary diuretic mixture three times a day. The following day there were frequent attacks of urgent orthopnœa, intense anxiety, sweating, and pain at the heart of the character of angina. He was so convinced that digitalis was likely to act as "the opium of the heart" that he tried the subcutaneous injection of one-fiftieth of a grain of digitalin. He soon found that the drug aggravated the distress; improvement, on the contrary, followed the administration of five-minim doses of tincture of aconite and the occasional inhalation of nitrite of amyl.

In another case, in which there were, in addition to the symptoms in the former case, signs of tricuspid regurgitation, no digitalis was given, but five-minim doses of tincture of aconite were ordered. The pulse rate was then 140. Three doses were given during the night, and then it fell to 132, afterwards to 128, and in the morning it was 88 and the patient much relieved. In the third case, the treatment consisted in rest, with an occasional purgative, and sometimes the administration of a draught of sulphuric ether, ammonia, and compound tincture of camphor; but no direct cardiac tonic or sedative. The patient had mitral regurgitation and aortic obstruction and insufficiency, with hypertrophy and dilatation of the heart. The cardiac distress subsided under the treatment.

Another objection to the use of digitalis in rheumatic aortic disease, is that it sometimes causes such sickness that the patient is intolerant of it. A third objection which may be urged against its use, is that death has in some instances occurred in such a way as to suggest the opinion that there may be some relation between the administration of the drug and the fatal termination. The author thinks that there may be some validity in this objection.

Cases which show gradually failing heart power in spite of all remedies, he thinks, are cases in which the muscular fibrillæ have been involved in the rheumatic inflammation, so that the muscle cannot respond to the influences which ordinarily excite it to contraction. Treatment should, in these cases, begin with the anterior rheumatism. The author says he cannot resist the conclusion that treatment with the salicylates tends to exert a favorable influence on the cardiac complications. "I have," he says, "distinct and indisputable evidence, that in some cases manifesting aortic disease, though no articular phenomena were in existence, the administration of the salicylates in full doses has been followed by a marked amelioration of the symptoms referable to the heart."

In concluding this part of his subject, he formulates his opinions as to the treatment of disease of the aortic valves resulting from rheumatic endocarditis, in the following propositions:

1. In all cases manifesting signs of disease at the aortic orifice, whether obstructive or regurgitant, if there be an immediate association with acute or subacute rheumatism, it is of the first importance to counsel complete rest in bed. The observance of such rest is sometimes sufficient to allow a complete compensation to be brought about.

2. In such cases digitalis and other special cardiac tonics should not, as a rule, be employed until time has been given for observation, and for the use of appropriate means to subserve general nutrition.

3. In cases in which there is reason to believe that the lesion is chronic, in relation with a remote attack of rheumatic fever, with no evidence of the recent existence of subacute rheumatism, the administration of digitalis, convallaria, or caffeine is indicated, but a prolonged course of any or either of these agents is undesirable. It is better that they be administered for periods of one or two weeks, and then that general tonics be alone prescribed; for, the energy of the ventricles being once increased, this may be maintained without the aid of agents specially influencing the cardiac muscular fibre; and in aortic disease, agents which considerably modify the rhythm of the heart are not without danger.

4. In the case of a young subject in whom there is no evident manifestation of rheumatism, and yet a very low tension of pulse, which cardiac tonics fail to modify, it is probable that rheumatic endocarditis is in progress, and absolute rest with the administration of the salicylates should be counselled.

Treatment of Atheromatous Disease of the Aortic Valves.

In this form of aortic disease there is no history of acute or subacute rheumatism; the patients are over forty years of age; there are evidences of senile and degenerative changes; the arteries are hard and tortuous; the temporals prominent and cord-like; and, except at the later stages, the pulse possesses nothing of the Corrigan (water-hammer) character, but manifests high tension. Sometimes the course of this disease can be traced by clinical observation, as in the following case: In a man fifty-three years old, symptoms of enfeeblement, fluttering of heart and gradually increasing dyspnœa had been coming on for two years. He was subject to gout, and generally had three attacks a year. The

early observations of his heart showed the systolic murmur at the base of aortic obstruction. The pulse was typically one of high tension. Under treatment with alkalies and digitalis (in the form of leaves), there appeared to be much improvement, and the general rate of the pulse was reduced from 104 to 60. Six weeks after the first observation an attack of gout occurred, and a slight diastolic murmur at the base became evident in addition to the systolic. There was no albuminuria. The diastolic murmur became more and more pronounced, the conditions of distress aggravated and the patient died about five months after the first observation. This case DR. SANSOM considers a fair type of a certain section of the cases. In some there is a very distinct association with chronic renal disease; in others with gouty arthritis or with conditions associated with lithæmia; in others with syphilis.

As in the rheumatic form there may be evidences of considerable morbid change at the aortic outlet, and yet symptoms referable to the circulation may be entirely absent. As illustrating this fact, Dr. Sansom relates the case of a man thirty-eight years old, who applied for treatment for gout in May, 1878. There was no complaint whatever of disorder of the circulation or respiration, but a loud systolic and diastolic murmur at the base of the heart with signs of hypertrophy, indicated considerable aortic disease. This condition persisted at a subsequent visit on September 2, 1886, but still without any symptoms whatever of heart trouble. In explanation of the fact that cases in persons of about the same age and presenting almost identical physical signs, may vary widely in regard to the distress felt and the danger incurred, the author suggests that if the location of the atheroma is such that the nutrition of the heart is compromised—as at the orifice of the coronary artery—then distress and danger occur; but these may not occur if the atheroma is confined to the aorta near the valves.

In regard to treatment. The high-tension pulse does not contra-indicate digitalis, caffeine and convallaria, but these drugs are, on the contrary, singularly beneficial. But where the disease is advanced these drugs are not to be used. The only objections to digitalis in this form of disease are when it (1) increases the suddenness of the ventricular contraction, or (2) induces a notable perturbation of rhythm, such as the pulsus trigminus—objections which the author thinks are rarely manifested in the atheromatous, though often asserted in the aortic form. Caffeine is often very valuable to either supplement or supplant digitalis. In cases attended with the appearance of much lithic acid or lithates in the urine, caffeine citrate in five-grain doses three times a day causes free diuresis, an increased elimination of solids, and great general improvement. In this dose the drug should not be continued more than three or four days, but one dose of five grains may be given every evening. So much relief from suffering is thus afforded that it is sometimes difficult to persuade the patient to omit the dose occasionally for a night or two. Dr. Sansom is convinced, however, that such occasional omission is desirable: the change of one form of cardiac tonic for another is often very beneficial; he has seen great improvement when convallaria has followed digitalis.

As to cardiac depressants, the author looks upon nitrite of amyl by inhalation, and nitro-glycerine in tablets as extremely valuable in high-tension pulses. He has seen great advantage from long-continued courses of nitro-glycerine in

small doses (1-200th of a grain) three times daily. Danger may, however, result from long-continued use, as he thinks there is such a thing as nitro-glycerino-mania.

Concurrently with these agents which immediately affect the heart and circulation, and occasionally for periods to supplant them, he considers alkalies of signal advantage. A very convenient form for protracted administration is this:

Bicarbonate of potash,
Bicarbonate of soda, of each,..... 10 grs.
Powdered ginger,..... 5 grs.
Powdered leaves of digitalis,..... 1 gr.

Mix. The powder to be taken in water thrice daily, one or two hours after meals.

The iodides, especially the sodium iodide, have been strongly recommended in these cases, and M. Huchard considers the iodide of sodium almost a specific for angina. In those in whom there is a distinct history of syphilis, the administration of the sodium iodide in gradually increasing doses, five ten, fifteen and twenty grains, three times a day, concurrently with cardiac tonics, is indicated, but not in others. Along with this treatment, friction, massage, and in some cases systematic bathing can be proved to be of signal advantage. Liniment of aconite and belladonna often distinctly relieves the pain referred to the sternum; but for protracted daily use no liniment has any advantage over massage practiced with the soft portion of the thumb and palm, dusted occasionally with a little lycopodium or powdered Fuller's earth. In a case of *advanced* atheromatous disease at the aortic orifice, he would hesitate before advising thermal treatment at any of the well-known watering places.

In aortic disease, when the heart is very irritable and palpitation is frequent, a wakeful night may mean much mischief. In such condition he has employed urethan in a single dose of 20 grains at bedtime, without any ill consequence. Paraldehyde, in 30 minim doses in almond mixture, may be given as an alternative, the dose being repeated in half an hour if sleep fails to come. If these fail, hypodermics of morphia and atropine will answer best.—*Lancet*, Dec. 31, 1887.

Case of Tetanus.

Dr. Jno. Boice, Prof. of Surgery and Clinical Surgery, Gross Medical College, Denver, Colorado, reports the following case in the *Denver Medical Times*, January 1, 1888: This case occurred within seven hours from the time of injury, and the patient was a strong, robust, well-nourished German girl of phlegmatic temperament. The quantity of chloral taken was so great that the author wishes it understood the patient was under the constant supervision of one or the other of the two very competent resident physicians of the Hospital, who remained with her until all danger had passed. The patient, who was eighteen years of age, was brought into Hospital at 8.30 A. M., April 18, suffering from an accident she had just received in a laundry. As soon as possible Dr. Boice saw her, and found she had managed to get the fingers of her right hand between the iron or steel rollers of a steam mangle, and before the machinery could be stopped it had drawn the arm through to a little above the elbow. The integument and subcutaneous tissue, from three inches above the bend of the elbow to the wrist, was completely torn off and turned inside out, as you would the finger of a glove in pulling it off. She was told that amputation was the only thing that could be done to preserve

her life, but she would not consent, and none of her friends being present, the operation was postponed until the following morning, when she would be able to have some of her family present. Carefully replacing the integument, which was crushed and burned by the hot rollers, the arm was dressed antiseptically and placed it upon a right-angled splint. A quarter of a grain of morphine was ordered to be given her every hour, if necessary, to relieve pain, and she thus received three doses. At 3 o'clock in the afternoon the patient was suffering from well-developed tetanus, with her jaws firmly fixed and her muscles rigid as iron. Dr. Boice directed thirty grains each of chloral and bromide of potash to be given her at once by enema, to be repeated in an hour if necessary, and then thirty grain doses of the chloral alone to be given every two hours, by the mouth if possible, until the desired effect was obtained; the violent spasms to be controlled by inhalation of chloroform. At 8 o'clock next morning she had taken in all two hundred and ten grains of chloral and was sleeping, but still very restless and irritable. Her temperature was 102° and her muscles relaxed. At 11 o'clock she was in about the same condition, so he amputated the arm in the upper part of the middle third, the crushed tissues of the forearm having already begun to slough. The ligatures and sutures used were of catgut and the stump was carefully dressed with sublimated gauze and jute. At 12 M. she began to show signs of an approaching spasm and was immediately given a twenty grain dose of chloral, which was repeated at 2 P. M. At 8 P. M. he found her temperature had fallen to 99° and her pulse to 100. She had not required any more chloral during the afternoon. On the morning of the 20th her temperature had risen to 100° and her pulse to 110. During the night it required one hundred and forty grains of chloral to prevent the recurrence of the violent spasms. During the next twenty-four hours she was given in all one hundred and fifty grains and afterwards only required an occasional dose to keep the muscles relaxed. Her temperature had again fallen to 99° and her pulse to 90, where they remained for some days, and then both became normal. On the twentieth day she was discharged, the stump having healed by first intention.

IV. OBSTETRICS, DISEASES OF WOMEN AND CHILDREN.

An Epidemic of Measles.

W. D. HODGES, M. D., in a paper read before the Section for Clinical Medicine, Pathology, and Hygiene of the Suffolk District Medical Society, December 14, 1887, said: An unusual opportunity to observe an epidemic of measles at a charitable institution, from its inception to its end, is my apology for bringing this subject before the Section.

On January 27 the institution contained sixty-five children, between the ages of one and fifteen years—fortunately, a much smaller number than usual. On that day a child six years old was admitted, and, as it had a severe cold, was sent at once to the sick ward. Twenty-four hours later an eruption appeared, which proved to be measles; and it was subsequently learned that the child had been exposed to this disease. On the same day that this child developed measles, three children were discharged from the ward in which he was put.

Nine days after the discharge of one, and eleven days after the discharge of the two others, they developed measles, and had also conveyed the contagion to 14 other children, who were admitted to the hospital on the following day. Sixteen more children were taken sick on the 22d and 23d days after the breaking out of the *first case*; that is, eleven and twelve days after the development of the *first set* of cases. During the next seven days, that is, between the 29th and 36th days, 12 more children developed the disease.

Of the remaining 20 children in the institution who escaped measles, 10 were sent away; 8 had already had measles before they were inmates. In two instances, no definite information could be obtained. The epidemic was confined to 45 children, 39 of whom were between the ages of four and seven years, and its fatality was represented by five deaths—one of whom had capillary bronchitis, and the four others diphtheria. Examination of the throat in 30 cases showed a varying amount of congestion of the pharynx, palate and tonsils, with, sometimes, red papules. Three cases with very marked congestion were followed, in twenty-four hours, by diphtheria, two of which were fatal. The eruption was at its height on the fifth and sixth days, and lasted from twelve to fourteen days. In eight cases it did not disappear for over three weeks, and this group included the four oldest children, aged, respectively, nine, ten, eleven and nineteen (a servant).

It is interesting to note that two of these cases of long duration of the eruption were complicated with capillary bronchitis, one with pneumonia, and one with diphtheria. One of the children with capillary bronchitis died.

Desquamation was noticed in a large number of cases—probably more than half—in a few of which large pieces of cuticle were thrown off. The enlargement.

of the glands in the neck was most marked in those cases which had considerable congestion of the fauces. Aphthæ upon the lips and tongue were very severe in nine cases. There were 25 cases of otitis, most of which were detected during the first week, the children crying without apparent cause, and raising their hands to their ears. There was one case of convulsions, which came on three days before the eruption. This child made a rapid recovery. Epistaxis and diarrhœa were of frequent occurrence, but never a cause for anxiety. Conjunctivitis, with intolerance of the light, was present in most of the cases, and was treated with a solution of borax, glycerine, and water. The highest temperature noted was 106°, in a case complicated with capillary bronchitis, which proved fatal. The temperature usually fell slowly after the eruption had reached its point of greatest development. It was generally sub-normal during convalescence. The treatment consisted chiefly in maintaining cleanliness and regulating the diet.—*Boston Medical and Surgical Journal*, February 2, 1888.

Remarks on the Albuminuria of Pregnancy.

In a paper read at the annual meeting of the Medical Society of the State of New York, Wednesday, Feb. 8, 1888, Dr. Fordyce Barker said (*Medical Record*, Feb. 11, 1888,) that he preferred to use the term "albuminuria of pregnancy," as defining the topic of his paper, rather than acute Bright's disease for the following reasons:

1. Bright's disease has become so familiar to the public, as one which must sooner or later terminate fatally, that it inevitably depresses a patient, and especially carries terror to the minds of women during gestation, and to their friends; while the disease we are discussing, if properly treated, results in recovery of a large majority of patients. Why, then, he says, should we deprive our patients of the positive benefits of confidence and hope by the use of a term which may be scientifically incorrect, inasmuch as the pathological conditions now accepted as belonging to acute Bright's disease may be, and sometimes are, absent in those cases where albumin is abundant in the urine, and where other general symptoms which, in the aggregate, we call albuminuria, may be found in an alarming degree?

2. He expresses his conviction, based on experience and observation, that in nine cases out of ten, in private practice, where albuminuria is found in pregnant and parturient women, the structural lesions of the kidney, which can be properly designated as Bright's disease, did not exist previous to pregnancy, and even in hospital practice, where the organic changes exist in a larger proportion of cases, it is his belief, after a careful review of his experience, that the assertion just made is true in seven out of ten patients.

3. He also believes that the albuminuria of pregnancy and the organic disease which can be properly termed acute Bright's disease in the non-pregnant should be regarded, clinically, etiologically, and sometimes pathologically, as distinct diseases, requiring differing therapeutic treatment, and having essentially a different prognosis. They are allied diseases in the fact that both have many of the most striking phenomena in common, as albumin in the urine, and dangerous neurotic, gastric, and vascular disturbances of a similar character,

and both may induce that peculiar form of blood disease, with all its dangerous consequences, which is called uræmia.

The terms albuminuria, uræmia, and Bright's disease, are not synonymous or identical. Either condition may exist alone, but they are often associated, as cause or consequence of one or both of the other conditions. The symptoms of the disease known as albuminuria may exist for some time before albumin can be found in the urine—such as œdema, first in the lower extremities, gradually becoming general and invading the face; puffiness of the eyelids is generally present. The œdema sometimes extends to all the areolar tissues, and even dangerously fills the serous cavities.

Arterial tension, as demonstrated by small, hard, thready pulse, is a symptom of great importance. The patient often has a chlorotic or anæmic appearance; and if nausea, or vomiting, or other gastric disturbances come on in the later months of pregnancy, these symptoms should excite suspicion. The cerebral symptoms are very important, such as headache, dimness of vision, impaired hearing, and an unusual mental dulness, with unusual excitability. A marked decrease in the amount of the renal excretion is a very serious and significant symptom.

There have been various theories as to the causes of albuminuria in pregnancy: First, it may be entirely due to certain modifications of the system, resulting from pregnancy, such as changes in the quality of the blood. During the period of gestation the blood becomes superalbuminous, as has been demonstrated by Claude Bernard, and many others. There is increased demand for albumin for the nutrition of the fœtus. There are changes in the capillaries, which should be reserved for plastic alimentation. The urine of the fœtus normally contains albumin, but does not contain urea. Therefore the maternal albumen, which passes through the fœtus without being employed in its development, returns to the maternal system loaded with waste material. Robin asserts that in pregnant women hæmatosis is incomplete, and thus predisposes to an hydræmic state of the blood and relaxation of the tissues which facilitate the passage of albumen into the urine, which is notably increased by the arterial tension always found in this condition. Thus we often find serous plethora in pregnant women. Formerly he believed more fully than he now does in the mechanical theory, first suggested by Dr. Cormac, that in a large proportion of cases of albuminuria in pregnancy, especially in primiparæ, it was a result of venous congestion, caused by the pressure of the gravid uterus on the emulgent veins of the kidney. This may be one of the causes, but it is probably rare, as the pressure is very slowly developed, and the circulation adjusts itself to the changed conditions, as we are constantly seeing clinically.

This mechanical theory may be the explanation of a fact often observed, that in some patients, where repeated examinations have failed to detect albumin in the urine, it has been found abundantly after the process of parturition, especially if convulsions have occurred. The violent muscular contractions seem to have interrupted the venous circulation to such an extent as to produce acute hyperæmia of the kidneys, and afterward the urine is loaded with albumin. While our knowledge has been greatly advanced by recent investigators, among whom Mahomed, Bouchard, Capron, Moricke, Gubler, Peter Rosenstern, deserve

particular mention, and many others, still we will all agree that renal pathology, in relation to its associations with pregnancy, is in a transitional state, with bright hopes as to our exact knowledge in the future.

In the treatment of the albuminuria of pregnancy the most prominent indications are, obviously, to restore the normal condition of the blood, and to prevent the tendency to, or overcome existing, renal congestion. Of course, the means to secure these objects must vary extremely, according to the special conditions of each case. Thus, in one, anæmia, hydræmia, and general feebleness of the vital powers predominate In another, plethora and abnormal activity of the digestive and assimilative functions; and a strong tendency to renal and cerebral congestion is a prominent characteristic.

The question of diet is one of the most important points. The first class need a nutritious diet, avoiding the danger of over-taxing the kidneys by restricting the amount of nitrogeneous food, and chalybeates may be required. He has often seen great benefit from giving the patients, for weeks before parturition, a teaspoonful of glycerine, 3 parts, and tincture of chloride of iron, 1 part, in a wine-glass of water, after each meal. In a few cases wine, or some other form of alcohol, is often beneficial.

In the other class of cases an exclusive milk diet, so strongly urged by Tarnier, is very important. It would be a waste of time to discuss details of treatment familiar to all, such as the importance of saline purgatives to secure large serous intestinal discharges. The utility of diuretics in these cases is very questionable, except the indirect diuretic effect which results from the cardiac tonics, such as digitalis and the tincture of the chloride of iron. If the albuminuria is attended with symptoms indicating a threatening of uræmia, or it already exists, then more active treatment is necessary.

Venesection he regards as of the first importance, even if the patient be hydræmic, as it relieves from the effect of serous plethora. The bleeding removes tension from the brain, relieves congestion of the lungs, sets the breathing free, removes pressure from the laboring heart, and eases the congested kidney of the load that embarrasses it.

The medical journals now and then contain the report of a case of albuminuria successfully treated by the use of pilocarpine. When the therapeutic effects of jaborandi or its alkaloid, pilocarpine, were first made known to the profession, it was received with great enthusiasm, as a remedy which would probably prove of great service in the treatment of albuminuria. Dr. Barker's convictions are that the remedy is in this class of cases unsafe and uncertain, and that we have other resources much more safe and reliable.

The necessity and propriety of inducing premature labor in the albuminuria of pregnancy is one not yet settled. It was first advocated by Braun, of Vienna, some thirty years since. Some years later, Tarnier, of Paris, became the most prominent advocate of this measure, but he has very essentially modified his views in late years. Some ten years ago it was strongly advised by several of the most prominent obstetrical teachers and writers in New York, under conditions which seemed to Dr. Barker quite unjustifiable.

It was assumed that albumin in the urine, persistent for some time in large proportions, and if attended with extensive serous infiltration of the general

areolar tissue, demanded the induction of premature labor to prevent eclampsia. The doctrine accepted by the vast majority of the present day is, that albuminuria, even in its greatest development, never justifies this procedure, unless accompanied with unquestioned evidence of perilous uræmia, and other resources for the cure of both the albuminuria and the uræmia have been exhausted. The theory of this practice is based on the great danger of eclampsia; but this danger is much less than has been assumed, for while about 1 in 25 pregnant women have albuminuria, convulsions occur in only one out of 485 or 500 cases. Then it must be remembered that considerably more than half of the cases of convulsions come on during labor, whether spontaneous or induced, and more than one-quarter after parturition. He thinks the evidence is conclusive that, by appropriate prophylactic treatment, the albuminuria and the uræmia may be almost absolutely averted. It is many years since he has seen a case of eclampsia in a patient who has had the prophylactic treatment. One agent which may prove of great value in the treatment of the uræmia of pregnancy, but which, so far, has never been mentioned in this connection—is nitro-glycerine, in doses of from 1-100 to 1-50 of a minim, repeated every three or four hours. Its effect is to speedily reduce arterial tension and allay spasm of the cerebral and renal arterioles, and thus indirectly increase the functional activity of the kidney and marvellously quiet the nerve-storm so characteristic in these patients. Two cases, illustrative of these effects were briefly related.

The existence of amblyopia and amaurosis has been urged by some as a reason for the induction of premature labor. This reason has been chiefly brought forward by some of prominent ophthalmologists, and in the *Medical Record* of January 28, 1887, is a very interesting article on this subject. "I will conclude with this formula of my view on this point: The premature induction of labor may be justifiable and absolutely a duty, when the symptoms of albuminuria and uræmia have resisted previous medical treatment, and are of so grave and dangerous a character as to threaten the life of mother or child."

Pregnancy after removal of Cancer of Vagina.

Dr. Rüter, of Hamburg, describes the following case of this rare disease in the *Centralblatt für Gynäkologie*, No. 38, 1887. The patient was 36 years old, married twelve years, and had borne three children; menstruation was regular, and there was no evidence of syphilis. Defecation had been painful for months, and had been attended during the few weeks before she was first seen, on July 1, 1884, by hemorrhage from the vagina. The patient was bony and muscular, and not anæmic in spite of the frequent bleeding. On rectal examination a hard substance could be felt in the posterior vaginal wall, over which the mucous membrane of the bowel was not adherent. The finger introduced into the vagina encountered at a distance of a little over one inch from the vulvar orifice a hard elevation, which formed the border of the substance detected by rectal exploration, and an area of infiltration, tough, with an uneven surface two inches by one and a fifth in diameter. This area occupied the posterior vaginal wall, and reached to within a few millimetres of the reflection of the vagina on to the cervix. The cervix and uterus were entirely free from disease, nor was there any evidence of extension of the new growth into other parts. Touching

the brittle tissues of the surface of the growth set up hemorrhage. There was no fetor. The microscope confirmed the diagnosis of epithelioma of the vagina.

On July 23, 1884, the growth was removed. The mucous membrane was first set free above and around the upper part of the margin of the growth, so that the vagina was separated posteriorily from its uterine attachment. The bluish, transparent peritoneum was thus exposed; it was accidently cut through, in fact, Douglas's pouch being laid open, and a few drachms of clear, greenish, watery fluid escaped. The aperture was guarded by a retractor. Lower down the growth was detached from the muscular coat of the rectum, which appeared healthy. The entire growth was in this manner quickly detached, scissors being employed; there was but little hemorrhage. The rent in the peritoneum was closed with catgut sutures. Then the cervix was drawn and made to cover the hole in the posterior vaginal wall; the raw surface on the cervix whence the vagina had been dissected away was united by deep and superficial silk sutures to the edge of the wound in the vagina. The os externum thus lay almost as low as the vulvar aperture. Sublimate and iodoform were the antiseptics employed in this case. By August 7, the wound had thoroughly united by first intention. On May 15, 1885, Dr. Rüter saw the patient again. The catamenia had been suppressed since the operation till eleven weeks before this consultation; the right thigh had repeatedly become swollen; the veins did not appear to have undergone distension. The os uteri still lay close to the vulva, and there was no pouch between the cervix and the remains of the posterior vaginal wall, nor any trace of recurrence of the new growth. After May, 1885, the period remained regular till the patient became pregnant at the end of that year. On September 5, 1886, she gave birth to a child at term, and was able to suckle it. When last examined, on August 1, 1887, there was no sign of recurrence. The posterior vaginal wall had become lengthened through changes during and after gestation, measuring two inches and a half. Dr. Rüter believes that the swelling of the thigh and the amenorrhœa were due to the dragging down and temporary obstruction of large pelvic vessels caused by the displacement and fixation of the cervix. The influence of pregnancy overcame all traces of obstruction, so that the nutrition of the parts once more became normal.—*British Medical Journal*, January 7, 1888.

Peritonitis Ante-Partum.

Mr. W. J. Gow reports the following case of peritonitis before delivery which occurred recently in the lying-in charity of St. Bartholomew's Hospital:

The patient was a stout, well-made woman, thirty-two years old, who had previously had eight children, the labors in all these cases being natural. She was seen by him for the first time on the morning of May 9. She complained of frequent, sharp abdominal pains, not resembling labor pains in character. Her lips and cheeks were livid, and beads of sweat stood on her brow. Her tongue was slightly moist. There was frequent retching. The hands and feet were cold and clammy, and the pulse was barely perceptible at the wrist and could not be counted. The respirations were rapid, being about forty to the minute. She was quite conscious, and complained of great pain on turning on to her left side. The abdomen was distended, and the fœtus could be plainly felt, apparently

within the uterine cavity. On making a vaginal examination, he found the cervix soft, the os dilated to about the size of a five-shilling piece. The membranes were unruptured. The head was felt to be presenting. As she complained of constant desire to pass water with inability to do so, a catheter was passed, and about 1½ oz. of urine drawn off.

The history given by the patient was, that one month previously her right leg slipped through a hole in the floor, nearly as far as the groin, owing to some rotten boards giving way. Since then, she says, she has never felt well. She had reached nearly the full period of gestation, and was expecting to be confined every day. She remained in fairly good health until the evening of May 8. At 6 P.M. of that evening she was seized with sudden abdominal pain, and vomited. She was visited by one of the students, who found her complaining of abdominal pain and distension. She was belching up wind, but otherwise did not seem seriously ill. The pulse-rate was said to be then about 90. She was ordered some mild carminative.

Seeing the desperate state of the patient, he decided to perform version, and remove the child as rapidly as possible. Before commencing the operation, the patient's abdomen was rapidly auscultated, but the fœtal heart could not be found. The patient was placed on her back, and version commenced. To subdue the resistance of her abdominal muscles, a few whiffs of chloroform were administered tentatively; but as it made the patient more cyanotic than before, it was discontinued. Just as the knee of the child had been reached, the patient ceased to breathe. In the hope of saving the child, an incision was made into the abdomen.

On opening the peritoneal cavity a large quantity of semi-opaque peritoneal fluid, containing flakes of lymph, escaped. There was no blood in the peritoneal cavity. The uterus was seen covered with flaky lymph. An incision was made into it, and the child extracted about five minutes after the death of the mother. The child's heart was not beating, and all attempts at artificial respiration failed. There was only slight hemorrhage on cutting into the uterus. There was no blood in the uterine cavity. No evidence of rupture of the uterus or other organ was discovered. The inflammation of the peritoneum was most marked over the uterus and in its neighborhood. No cause for the peritonitis could be found, but unfortunately no complete examination of the body was obtainable. Death took place fourteen hours after the onset of the symptoms.

In this case there is great difficulty in seeing any etiological connection between the history of the fall and the rapidly fatal peritonitis. The incompleteness of the post-mortem examination renders it impossible absolutely to eliminate various common causes of peritonitis, such as perforation of the vermiform appendix; but no ground of suspicion of any such cause was discovered.

The author then goes on to say: A very similar case to the above is related by Sir J. Y. Simpson.* The case did not occur in his own practice, but in that of Dr. Finlay. The patient had arrived at the full term of gestation, and died some hours after the commencement of labor, suddenly, and without marked symptoms. She seemed in good health till May 4, when she had a shivering fit, and began to complain of pain when moved. The pains recurred at intervals. At 5 A.M. on

* *Selected Works of Sir J. Y. Simpson*, edited by J. Watt Black, p. 305.

the 5th Dr. Finlay was sent for, and found her fairly in labor, the os being but little relaxed, but large enough to allow him to feel the breech presenting. There seemed no special reason for waiting, so he went away and returned at 9 A.M., when he found that the woman had just died quite suddenly. On making a post-mortem examination the abdomen was found to be filled with a quantity of serous fluid, in which some fibrinous flocculi were floating. The intestines were loosely gummed together in parts with inflammatory deposits. The uterus was also covered with lymph. No local cause for the peritonitis could be discovered.

For the reference to the two following cases Mr. Gow acknowledges his indebtedness to Dr. Matthews Duncan. They are related in his work on the *Mechanism of Natural and Morbid Parturition* (chap. viii, pp. 129–132). The first of these cases is that of a woman, aged 34. She was unmarried, and had arrived at about the end of the sixth month of pregnancy. She was believed to be using drugs to procure abortion, but no positive evidence was at any time obtained to show that drugs or interference was actually resorted to with this object. On January 10, she was seized with great abdominal pain and tenderness. On January 12, Dr. Duncan saw her in consultation, and found her suffering from acute peritonitis, the large pregnant uterus being especially tender. On the 16th she unexpectedly miscarried, labor appearing to be very rapid. There was very little blood lost. On January 19, she died, little more than two and a half days after delivery, being the tenth day of her illness. The post-mortem examination revealed universal peritonitis, the abdomen containing a large quantity of fetid purulent fluid.

The second case was that of a woman who died of enteritis, and on whom Cæsarean section was performed immediately after death. The full term of pregnancy was nearly reached. On making post-morten examination the peritoneum was found covered with a thin layer of dense lymph.

All these four cases are examples of peritonitis before delivery, in which no cause for the peritonitis was discovered. Judged from the paucity of the recorded cases, and the fact that no mention of such a disease is made, as far as he can discover, in most of the chief works on obstetric medicine, they must be of great rarity.

In the case that occurred to the author, the diagnosis lay between peritonitis, concealed hemorrhage, and rupture of the uterus. Seeing that the membranes were unruptured, the last was rendered in the highest degree improbable. Peritonitis and concealed hemorrhage could hardly have been differentiated in this case before the uterus was emptied or the abdomen opened.—*Edinburgh Medical Journal*, January, 1888.

The Operative Treatment for Intestinal Invagination.

BRAUN (*Jahrbuch für Kinderheilkunde*, Bd. xxvi., H. 3 and 4), reports the following case:

Intestinal invagination had developed in a child three months old. There was no question as to the diagnosis, for the prolapsed intestine could be distinguished in the rectum. All non-operative measures had been tried without success, and, although the child had already been sick six days and was very feeble, the author decided to perform laparotomy. A tumor was found lying

in the left hypochondrium, crescentic in shape, drawn upward through the torn mesentery and mesocolon, and firmly fixed, at the upper end of which lay the contracted ileum and vermiform appendix. A careful attempt was made to separate the parts, but in doing so the intestine was torn at the point where the invagination began. There was an escape of fæcal matter, and the only course which could be adopted was to resect the injured intestine and unite the divided ends, which was done. The child died one hour after the operation was completed. The sutures had held, and there was no evidence of peritonitis. The resected portion of intestine was thirty-three inches long, its mucous membrane being grayish-yellow in color, and it was composed of the lower portion of the ileum, the cæcum, and vermiform appendix, and the ascending and transverse colon. The upper segment of the part which had been invaginated was gangrenous. Leichtenstern has reported thirty-nine cases of ileo-colic invagination, all of which were fatal, but notwithstanding this bad showing the author thinks that recovery in such cases should not be considered an impossibility. In his case the invaginated portion was ten inches long, but it was so folded that its length was reduced, while *in situ*, to 1¼ to 1½ inches. He thinks that this folding explains the readiness with which spontaneous relief sometimes occurs, also the success which sometimes attends therapeutic measures, and the increase and diminution of the invagination which are occasionally apparent. The use of large injections of water to relieve this condition after it has lasted some time is believed to be dangerous, as gangrene may be already present and the increased pressure result in perforation.

In the literature of this subject the author found: (1) Reports of fifty-one laparotomies for the relief of invagination, thirty in children and twenty-one in adults, with forty fatal results. (2) The invagination was relieved in eighteen children, but fourteen of them died; the operation failed in twelve children and twelve adults, all of them dying; in three children and six adults enterotomy was performed after the failure to relieve the invagination, all of them dying. (3) In three children and seven adults enterotomy was performed without any attempt at relieving the invagination, all the cases being fatal. The phenomena of obstruction had lasted in the four children who recovered for half a day, one, four, and thirty days, their ages being six, seven, nine, and twenty-four months, respectively. In the five adults who recovered the periods of obstruction lasted a few hours, four, nine, seventeen days, and one year, respectively. Death followed the operations upon the children at periods varying between a few hours and two and a half days. Experience has shown that if operative measures are to be successful they should be instituted within one or two days from the time when the obstruction is established, at a time when there is still very little tympanites or peritonitis. The younger the patient the sooner should the operation be performed. Among the operations which have been successfully performed have been several which were not done until the invagination had existed four or five days; in one case it had lasted for a month. If an operation is performed the intestine must be very carefully examined, in order that a resection may be made if any portion of it is at all gangrenous, and also that any existing tumor, which may have caused the invagination, may be discovered and removed. The formation of an artificial anus after an unsuccessful attempt to relieve invagination offers very little chance for

success, and the same is true with respect to enterotomy.—*Archives of Pediatrics*, Jan., 1888.

The Treatment of Infantile Diarrhœa.

CADET DE GASSICOURT (*Rev. mens. des Mal de l'Enf.*, September, 1887), says:

Considering the great susceptibility to disease of the intestine in children, the plan which is of greatest importance, especially with nursing children, is to look closely to the diet. The child should be kept at the breast from twelve to eighteen months if possible. If artificial nourishment must be given, in the form of cow's milk, it should be boiled, twice daily if necessary, to prevent fermentation, and the greatest care must be used to keep the containing vessels sweet and clean. Should diarrhœa occur in spite of these precautions, the child should be nursed or fed half or two-thirds as frequently as before, if the attack is a mild one, and lime-water or Vichy should be given either pure, before feeding, or in the proportion of one to five or one to four in the milk. If the attack is a severe one, the milk should be replaced by beef or chicken soup, and in almost all cases it will be well to begin the treatment with a purgative. If the case is a mild one, the purgative may consist of fifteen minims of castor-oil for a child under six months of age, and forty-five minims for one two years of age; seven and a half to twenty-two and a half grains of bicarbonate of soda with fifteen to forty-five grains of white magnesia, according to the age, in a little sweetened water. In the severest cases one and a half or two grains of calomel may be given. If the stools are muco-sanguinolent and accompanied with tenesmus, Henoch's prescription may be followed: an infusion of one and a half grains of ipecac in two fluid ounces of water, to be taken in doses of a coffeespoonful every three hours. Should the stools continue liquid, opiates or astringents must be given, and the author prefers to give them by the mouth rather than by the rectum. Sydenham's laudanum or paregoric are preferred as opiates, and extract of rhatany as an astringent. If the diarrhœa is accompanied by vomiting, Rivière's potion, with cold drinks or small pieces of ice, may be given. If the diarrhœa is of infectious origin, two drops of creasote may be given in a potion consisting of three fluid ounces of canella-water and two and a half fluid drachms of syrup of rum, or one-half to one and a half grains of carbolic acid, in the course of a day, in the same potion, or seventy-five grains of benzoate of soda, or one and a half to six grains of resorcine, either of the last in the same manner as the preceding. Comby has recommended:

℞ Naphthaline.....7½ grains.
Cognac.....2½ fluid drachms.
Syrup of malva.....1½ fluid ounces.
M. Sig.—Coffeespoonful as indicated.

℞ White sugar.....2½ drachms.
Naphthaline.....15 grains.
Iodoform.....7½ grains.
Ess. bergamot.....2 drops.
Div. in chart. no. xx.
Sig.—One powder every hour.

The author also frequently gives in a soupspoonful of sweetened water, half a drop to two drops of Sydenham's laudanum and two drops of dilute hydrochloric acid. This may be repeated several times daily according to the indications. He approves of the method of Hayem of giving to an infant before nursing a coffeespoonful of a two per-cent. solution of lactic acid, five to eight times in the course

of the twenty-four hours. Rilliet and Barthez's prescription has sometimes been found very effective—one-sixth to one-half grain of nitrate of silver being dissolved in two fluid ounces of distilled water, and a coffeespoonful being given every hour until the severe symptoms cease. Rectal injections may also be given containing three-fourths of a grain to one and a half grains of the silver salt in three fluid ounces of distilled water. An enema may also be given consisting of seventy-five grains of ipecacuanha-root boiled in three fluid ounces of water until the quantity is reduced one and a half fluid ounces. In case of collapse, alcohol, subcutaneous injections of ether, and warm or mustard baths may be given. Brandy is preferred to any other form of alcohol, and one may give two to six fluid drachms of it in twenty-four hours, according to the age of the patient and the severity of the case. Mustard-plasters may be applied to the abdomen and the extremities, and the stimulation of mustard baths will often be found very beneficial. Fifteen to thirty minims of ether may be injected subcutaneously two, three, or even four times in the course of twenty-four hours.—*Archives of Pediatrics*, January, 1888.

Naphthalin in the Intestinal Diseases of Children.

WIDOWITZ (*Jahrbuch für Kinderheilkunde*, Bd. xxvi., H. 3 and 4) says that this substance was first recommended for certain intestinal affections by Rossbach in 1884, and soon afterwards, as the result of greatly increased experience, he outlined its indications more definitely. The purest naphthalin alone should be used, and he found it invaluable in cases of chronic intestinal catarrh and cholera morbus in children, as well as in typhoid fever. In intestinal tuberculosis he found that it caused some improvement, but no radical change, and for acute diarrhœa it was no better than opium and suitable diet. Rossbach's success was not attained by others who used naphthalin according to his directions, and they reported that it produced hypogastric pain, strangury, tenesmus, and urinary appearances suggestive of carbolic-acid poisoning. Moderate success was reported, however, by a few writers. The author, after extensive and careful use during a sufficiently long period of time to warrant conclusions, decided:

1. That naphthalin is ineffective in the so-called dyspepsias which are characterized by frequent movements of the bowels, and usually by the vomiting of coagulated milk, and is inferior to other medicaments which are in general use for such conditions.

2. In all other forms of intestinal catarrh in children naphthalin should be preferred to all other known means of medication. In simple acute diarrhœa the preparations of opium would be preferable, but for the fact that naphthalin checks fermentation processes, and in this way prevents an acute intestinal catarrh from developing into a chronic one.

The author thinks that the fear of unpleasant results from the use of this drug has been exaggerated. He saw none, but on the contrary, often observed that children at once began to be more animated and their appetites to improve. There may be idiosyncrasies in regard to its use, as there are to all drugs. He believes that one should begin with small doses—four and a half to fifteen grains daily—given with suitable excipients to disguise the unpleasant ordor. A combination with alcohol, tincture of opium, and oil of peppermint was found

very effective not only in making a mixture which could be tolerated by the stomach and palate, but which was especially useful in checking profuse diarrhœa.—*Archives of Pediatrics*, January, 1888.

The Importance of Water, Sugar, Salt and Fat in the Diet of Infants.

Dr. A. Jacobi, in a communication to the *Archives of Pediatrics*, Jan., 1888, upon therapeutics of infancy and childhood, says: Infants' food ought to be mixed with large quantities of *water*, for reasons given on other occasions, under ordinary circumstances. In diseased conditions of the stomach the free dilution of children's nourishment with water is demanded upon the following additional facts. Only to a certain limit will pepsin be furnished for digestive purposes. Probably a portion of this is not entirely utilized, because a great quantity of water is necessary to assist in pepsin digestion. In artificial digestion albumen often remains unchanged until large quantities of acidulated water are supplied. Without doubt many disturbances of digestion are to be explained by a deficiency of water, certainly many more than are due to an excess of it, for the latter is speedily relieved by rapid absorption. In this connection I would lay stress upon the fact that, as a rule, small children receive water only as they get it in their milk or milk food. Alike in summer and in winter, it is probable that the fact seldom occurs to a mother or nurse that a child may be thirsty without being hungry at the same time. Certainly many a discomfort and even sickness in a child is conditioned upon the fact that it has been compelled to eat in order to get its thirst satisfied, and often has to suffer thirst because the over-stimulated and injured stomach will take no more nourishment at irregular and too short intervals. There are even normal products of digestion capable of disturbances in the digestive process, chief among which is peptone itself, which is not absorbed unless it be greatly diluted. I have, therefore, considered it necessary in preparing the rules for the feeding of children, which the New York Health Department has annually published and distributed since 1872, to insist upon giving infants who cannot ask in so many words for it, an occasional drink of water, at least during the hot weather. When there is the least ground for the supposition that the drinking water is contaminated with germs of disease, or where it is unusually hard, it should be boiled before its admixture with children's food, whether the diet be milk or a mixed one. In general it will give greater satisfaction to use the boiled water systematically, even though there be no apparent urgency for it in the cases of very young infants.

There are many other indications for the administration of water in the diseases of the young. In many morbid conditions it is wanting. Perspiration, diarrhœa, general inanition, feverish diseases, diminish its quantity in the tissues and blood-vessels. Thus an inspissation of the blood takes place, thromboses form in the small veins in distant parts of the viscera; in the brain they lead to convulsions and defective innervation (hydroencephaloid), in the limbs to œdema or gangrene. The remedy is water in sufficient quantities. Where the stomach rebels, the hungry lymph-ducts of the rectum will greedily absorb an ounce or much more, injected every hour or two. In many a case life is saved in this manner.

Where general metamorphosis is slow, water in abundance increases the elimination of urea and carbonic acid. Where the urine is scanty and of an undue specific gravity, water protects the kidneys from undue irritation. It acts on the mucous membranes as it does on the external integuments. In laryngitis and bronchitis it liquefies viscid expectoration, in many forms of constipation it acts beneficially by increasing the secretion of the muciparous glands of the intestines. Ice and ice water, or iced carbonated water, in small quantities, but frequent doses, relieve hyperæsthesia of the stomach and stop vomiting. Warm water acts as an emetic, hot water injected into the rectum combats collapse. In this very connection, however, I may allude to what good may be done by abstinence from water. In some forms of acute gastro-enteritis, where vomiting and diarrhœa are excessive, the only salvation is in total abstinence for from four to eight or ten hours. Not infrequently the turning-point in the course of the threatened danger dates from the commencement of what appears to be cruel starvation.

A regular addition to the milk food of infants and children is that of *sugar*. Its percentage in the milk of the woman, ass, and mare is larger than that of the cow. Immediately after the milking of the cow the milk-sugar begins to be changed into lactic acid. This process, together with the gradual conversion of fat into acid, is the cause of curdling. The large amount of sugar in woman's milk, together with its smaller percentage of casein and butter, gives it the peculiar bluish color and furnishes the colostrum, which contains plenty of salts besides, hence its tendency to loosen the bowels. This property becomes manifest, sometimes, under abnormal circumstances. Thus in the milk of anæmic women sugar is occasionally found to an unusual degree. In their cases the other solid matters may also be diminished, still, this is not uniformly so. The infants, however, suffer often from obstinate diarrhœa. The conversion of milk-sugar into lactic acid takes place very rapidly. When it takes place in cow's milk this turns sour at once. Not infrequently is it sour from the first; it has been found to be so in the udder; in most cases it is "amphoteric," neutral. Thus the question arises what kind of sugar is to be used as the addition to the food of children both well and sick.

Cane-sugar is not so easily transformed. Indeed, it is utilized for the purpose of counteracting the rapid conversion of milk-sugar, and for the preservation of articles of food in general. Trade is not so slow in availing itself of the results of organic chemistry as the profession. Condensed milk remains intact a long time on account of the plentiful addition of cane-sugar, in spite of the original presence of milk-sugar in it. Therefore it is not at all an indifferent matter whether milk-sugar or cane-sugar be added to the food of infants and children. I have always insisted upon the selection of the latter for that purpose.

In the sick the absorption of sugar is slower than in the healthy. Besides, during most diseases, particularly those of the alimentary canal, there is more ferment in the mouth and stomach. Thus but little sugar ought to be given, and never in a concentrated form. Grape-sugar and dextrin are absorbed equally. Cane-sugar, according to Pavy, is partly inverted and partly absorbed. All appear to be changed, when given in moderate quantities, into carbonic acid and

water, even during moderate fevers. In that form of constipation of small infants which depends on a relative absence of sugar and superabundance of casein in the breast-milk, the addition of sugar acts very favorably. A piece of loaf-sugar (a teaspoonful or less) dissolved in tepid water (or oatmeal water) must be given before each nursing, and will often prove the only remedy required to regulate the bowels.

The physiological effect of *chloride of sodium* is very important, no matter whether it is directly introduced through the mother's milk, or added as a condiment to cow's milk, or vegetable diet. Both of the latter contain more potassium than sodium, and neither ought ever to be given, to the well or sick, without the addition of table-salt. A portion of that which is introduced may be absorbed in solution; another part is, however, broken up into another sodium salt, and hydrochloric acid. Thus it serves directly as an excitant to the secretion of the glands, and facilitates digestion. Therefore, during diseases in which the secretion of gastric juice is interfered with, or in the beginning of convalescence, when both the secreting faculties and the muscular power of the stomach are wanting, and the necessity of resorting to nitrogenous food is apparent, an ample supply of salt ought to be furnished. The excess of acid which may get into the intestinal canal unites with the sodium of the bile in the duodenum, and assists in producing a second combination of chloride of sodium, which again is dissolved in the intestines and absorbed. Its action in the circulation is well understood; it enhances the vital processes, mainly by accelerating tissue-changes through the elimination of more urea and carbonic acid.

A very important fact is also this; that the addition of chloride of sodium prevents the solid coagulation of milk by either rennet or gastric juice. Thus cow's milk ought never to be given without table-salt, and the latter ought to be added to woman's milk when it behaves like cow's milk in regard to solid curdling and consequent indigestibility. Habitual constipation of children is also influenced beneficially, for two reasons: not only is the food made more digestible, but the secretions of the alimentary canal, both serous and glandular, are made more effective by its presence.

A certain amount of *fat* is digested even in fevers of moderate severity, thus also in typhoid fever. But it is a good rule to rather reduce its quantity, because when infants were fed on cow's milk during capillary bronchitis, the fat in the fæces amounted to forty per cent. of the solid constituents. A few additional remarks will render the subject clearer, and show that it is very easy to give too much fat. There is a large amount fæces, although the baby receives absolutely nothing but mother's milk. What has been called detritus in the fæces is not exclusively undigested casein, but principally fat and large masses of intestinal epithelium. This so-called detritus is not soluble in water, acids, or alkalies, but quite soluble in alcohol and ether. Casein is present only when it has been taken in too large a quantity, or when there is too much free acid in the stomach. In those cases there are large quantities in the fæces.

An important practical application of this fact is the following: As it is true that fat is not completely absorbed, even under the most normal circumstances; as free fat acids are so formed and accumulated as they are found in moderate quantities, even in healthy babies; as a surplus is

very apt to derange digestion and assimilation, and to prevent the normal secretion of either of the digestive fluids; as there is a super-abundance of fat in the normal food of the nursling, the conclusion is justified that we should be very careful in preparing foods for the healthy or sick. It is very easy to give too much fat. It is hardly probable that there is too little.

Under the head of "Fat Diarrhœa," German journals and a few text-books speak of a diarrhœa, the chief characteristic of which is the presence of a large quantity of fat in the stools. The normal fæces of the newly-born contain ten or twelve per cent., sometimes more, of fat. In abnormal cases, even when the food does not contain it, the fæces may contain from forty to seventy per cent. of fat.

The microscope reveals in serious cases fat, almost to the exclusion of everything else, sometimes pure, and other times in more or less regular needles. The anatomical condition in fat diarrhœa may vary, but in the majority of cases we have to deal with a simple catarrh of the intestinal tract. There are changes in, and exfoliation of, the epithelium of the small intestine, swelling of the mucous membrane of the duodenum, with obstruction to the flow of the secretions of both liver and pancreas, and such hyperplasia of the mesenteric lymph bodies as to impede the absorption and circulation of chyle. Finally, in a very few instances, anatomical changes were found in the pancreas resembling those which in the adult interfere with the emulsion of fat. No improvement is possible unless the quantity of fat contained in the food be largely diminished. The administration of cream and the routine treatment with cod-liver oil are equally injurious in these cases.

In feeding the sick no new principles must be sought for. The sick child is still the child, and the physiological laws hold their own under changed circumstances. No new articles of food can be discovered or invented, only the preparation or mixture of those in ordinary use may change temporarily, or a restriction in their number or amount take place.

Twelve Cases of Ruptured Tubal Pregnancy.

Mr. Lawson Tait reports these cases in the *British Gynecological Journal*, Part XI., November, 1887. The cases here reported make up, with those already published, the unique record of 35 cases of abdominal section in ruptured tubal pregnancy, with two deaths. The cases are reported in the form of brief notes, which cannot with advantage be further summarized. The second case of the present series, and the operator's Case 25, is as follows:—"J. E., aged 35, married 18 years, had suffered severe pain all her menstrual life, had one daughter very soon after her marriage. She thought she had had three miscarriages six or seven years before, but had no living child. She ceased to menstruate suddenly at the end of January, 1886. She had no symptoms at all until the end of April, when a second attack of pain induced her to keep to bed. This pain continued about ten days, and she had a feeling of great lassitude and exhaustion, and was noticed to be very pale. She recovered and got up, and about the middle of May another attack of a similar kind induced her to go to bed and call in Dr. Cunningham, of Oldbury. A third and still more violent attack occurred on June 2. I saw her, diagnosed ruptured Fallopian pregnancy, operated on the

4th, and found a pregnancy of about the twelfth or thirteenth week of the right Fallopian tube, and the abdomen full of clots and bloody serum. I washed it out with warm water, used a drainage tube, and she left the hospital on July 1, quite recovered."

A case occurring in the practice of DR. DOLAN, of Halifax, is reported in greater detail, and is of value as giving with considerable circumstantiality the features of a fairly typical case of rupture. The fatal case was one of a hospital patient, who was first seen about two months after the rupture first took place. "She was so exsanguine that she seemed to be in a momentary condition of fainting, and her skin seemed to be tinged with hæmoglobin."

Mr. Tait gives it as his opinion that thirty-two or thirty-three, if not all thirty-five of the patients would have died but for operative interference. He attributes the death of the first patient operated on to want of experience. "I was too long over the operation; I fiddled about securing the bleeding points as they arose instead of doing as I always do now, separating all adhesions, regardless of the bleeding points, until I get as rapidly as I can down to the base of the tumor, which is the broad ligament. A ligature placed round that and secured at once arrests the hemorrhage."

On the question of electrolysis as a preventive of rupture or in the treatment of such cases as are described, it is pointed out that all the cases mentioned had to be treated after rupture, and when the lives of the patients were in extreme danger. "An electrolytic needle, under such circumstances would have just as much effect as a pinch of snuff. In some cases the fœtus had been dead for weeks, but the placenta evidently continued to keep up the circulation and hemorrhage went on.

"The diagnosis is not always possible, but it may be made correctly in probably 85 per cent. of the cases; the real clue to the nature of the case is a history of sterility for some considerable time, the arrest of menstruation for weeks or even months, and a sudden access of pain and collapse, with repetitions of these attacks."

Mr. Tait has met with his thirty-five cases within seven years, two of the cases occurring within twenty-four hours of each other. This fact confirms Dr. Blundell's statement that "the disease is by no means rare." With such a record as that which is here briefly summarized, perhaps the most remarkable in the history of abdominal surgery, the author's concluding statement errs, if at all, on the side of moderation: "Thanks to the progressive emancipation of the professional mind from the thraldom of authority within the last ten years, we have now the means, if we have a reasonable time in which to act, to save at least the great majority of these cases."—*Med. Chronicle*, January, 1888.

Placenta Prævia.

DR. L. E. NEALE, in a paper read before the Baltimore Gynecological Society, November 8, 1887, reported a case of placenta prævia, occurring in a woman 35 years old, who had previously borne three children. The following are the practical conclusions of his paper:

1. First of all let us bear in mind that an early diagnosis by touch, the

only positive method, should be made as soon as possible and is of the utmost practical importance in cases of placenta prævia.

2. Placenta prævia is an exceedingly dangerous pathological condition that should be removed as early as practicable, and therefore temporizing treatment, by which the pregnancy is allowed to continue, is certainly not justifiable after the 32d or 34th week or period of possible and probable extrauterine fetal viability.

3. Inasmuch as the mother is never safe until completely delivered, should her life be endangered by hemorrhage or the child be dead before this period, the evacuation of the uterus should follow as soon as practicable after the diagnosis.

4. The woman is never safe from hemorrhage until the uterus is completely and thoroughly contracted and retracted upon itself.

As regards the treatment during labor:

1. In cases of head or trunk presentation, pelvic version by the external or combined method of Braxton Hicks and the extraction of a foot through the os, then leaving the subsequent delivery to nature or completing it as soon as possible, according to the urgency of the case, is the best treatment, because it can be applied as early as the os will admit two fingers, and because its efficiency is amply demonstrated by its excellent results.

2. "When the placenta is only felt marginally, when the head has entered the pelvis, when pains are strong and hemorrhage not very profuse, then rupture of the membrane seems to be the right thing."

3. The tampon is only a temporary make-shift or entering wedge to a more radical treatment. It should only be used when the os is so undilated and undilatable that the finger cannot enter to perform the bi-polar version or grasp a foot. It should be applied under antiseptic precautions; it should remain *in situ* not more than four hours; it should be removed earlier if deemed advisable; the patient should be under the constant personal supervision of the physician during this time.

4. When the os is partially dilated, the pains good, the head in the pelvic cavity, and hence version is impracticable, Barnes's method of separating the placenta from the lower uterine segment might possibly be permissable. We should always be ready, however, to deliver instrumentally whenever necessary.

In cases of placenta prævia, as elsewhere, instrumental delivery may be required, according to the peculiar condition of the individual case, ex. gr., with head immovably fixed in the brim or pelvic cavity, forceps or possibly craniotomy might ultimately become necessary. With trunk presentations where version by any or all methods, external, combined or internal, had failed or were impracticable, decapitation would be required. In breech presentation, where extraction by the hand failed or was impracticable, the forceps, if practicable (frank breech; Tarnier forceps), might possibly become necessary, and should be preferred to the fillet or hook, etc, etc. But these general rules apply to all cases alike and need no special mention here.

Sources of Syphilis in Women.

PROFESSOR ALFRED FOURNIER (*Bul. de l' Acad. de Méd.*, October 25, 1887) presented a statistical document to the Paris Academy of Medicine at the meeting of October 25, to demonstrate that syphilis is not the exclusive result of vice and debauch and is not confined to those who expose themselves to it. The idea that such is the case must be strenuously opposed, and those who believe that syphilis does not seek out any victims, but must be sought for, should be shown their error. Out of a given number of syphilitic women observed under similar conditions, how many are there who have derived the disease from an unmerited source? How many times each one of us has seen married and respectable women who suffer from the fault of their husbands, children who have innocently received the disease, nurses who have contracted it from these children, and carried it to their own little ones at home and to their husbands? We shall not now speak of those lamentable cases of professional contagion of which physicians, nurses, midwives and students are so often the victims. The problem is insoluble in hospital practice where the patients are not known, and their declaration is all we have to guide us and cannot be verified. It must be settled by the statistics of private practice. During the past twenty-seven years Professor Fournier has treated in his office 887 women affected with syphilis. These can be classed in two groups. 1. Cases of syphilis of sexual origin, 842. 2. Non-venereal syphilis, 45. These forty-five are made up of a variety of cases having nothing in common but the fact of a non-venereal origin. Among them are found seven cases of hereditary origin; four of syphilis accidentally contracted in infancy; eight cases of infection transmitted to nurses from infants having hereditary syphilis; five cases of midwives infected upon the fingers in the discharge of their professional duties; twelve cases of domestic contagion derived from infants, children, nurses or servants who had the disease. Two cases of syphilis transmitted by vaccination. Two by catheterization of the Eustachian tube. One case consecutive to rape. Four cases doubtful but of an origin certainly foreign to all venereal contamination. These constitute the class of syphilis of the innocent (*syphilis insontium*), and certainly deserve the qualification of *unmerited syphilis.*

The group of 842 cases was made up in the following manner: 366 of the women belonged to the irregular class; 220 were married; 256 were of an unknown social condition. A careful calculation, after eliminating doubtful cases, shows that out of one hundred women affected with syphilis, eighty-one belonged to the category of its irregular class, and only nineteen were married. This proportion Professor Fournier thinks does not even express the whole truth of the matter, extraordinary as it appears. Adding to these nineteen cases the number of five per cent. as representing the proportion of syphilis not venereal in origin, we have a total of twenty-four per cent. of cases of unmerited syphilis.

Here, then, is a strong argument in favor of public prophylaxis, which in reality would be offering protection to all classes. Diminishing the number of venereal cases decreases at the same time the resulting innocent infections.—*Journal of Cutaneous and Genito-Urinary Diseases*, February, 1888.

Preputial Adhesion as a Cause of Nocturnal Incontinence of Urine in Boys.

Dr. R. Burke, of Middletown, N. Y., in a communication to the *Massachusetts Medical Journal*, February, 1888, reports fourteen cases of nocturnal incontinence of urine. In twelve of them he found preputial adhesion, and in every instance cure followed its relief. In one of the two cases in which he *did not* find this anomaly, a large collection of smegma appeared to have been the cause of the difficulty, as its cure was affected by a simple removal of the matter and the application of an astringent lotion. The other was a young man just passed puberty, in whom the introduction of a No. 8 steel sound half a dozen times was followed by a relief of the incontinence. He soon lost sight of this patient, however, and is not able to vouch for the permanence of the cure. In all the twelve cases referred to, the difficulty had lasted from two to eight years. In one, there was involuntary nocturnal passage of feces as well as urine, both of which were completely cured by a detachment of the existing adhesion. If the habit is an old one, however, the author thinks that some weeks will often elapse before an entire relief of this distressing trouble is obtained by the operation.

In recent writings on this subject, phimosis is spoken of as one of the causes of this disease. None of the author's cases, however, had sufficient narrowness of the preputial opening to entitle it to the name of phimosis. He expresses the opinion that, in a vast majority of instances, the adhesion referred to will be found the sole cause of the difficulty, especially if it is of long standing. Bryant, though recognizing this as one of its causes, still recommends circumcision as its means of cure. Though a redundant prepuce may be a nuisance in an adult, and circumcision a sanitary precaution, some parents may object to having this Jewish rite practised on their boys simply for an occasional "wetting of the bed." In such cases, the facts above stated may be borne in mind—the adhesion sought for and broken up by a probe; or, if this should fail, by manipulation. In all his cases, this adhesion was found to be little more than a gluing of the preputial and glandular surfaces, and never requiring the knife for its relief, but only a little firm pressure upon the glans, while the skin is forcibly drawn back. As a rule, no blood follows this operation, and the smooth, glassy surface of the glans shows no decided marks indicating the place of attachment. He noted also that there was rarely, if ever, any collection of smegma or signs of inflammation behind the seat of the adhesion. The cause of this he regards as a congenital one.

A number of reflex morbid phenomena, he says, are clearly traceable to various forms of irritation of the genital organs. A somewhat extraordinary case of the kind recently came under his observation. The subject was a delicate youth of twelve years, who had been suffering for twelve months from epileptiform convulsions. The author's attention was directed to an examination of the genital organs by the fact that the seizures only happened at night. A typical glandulo-preputial adhesion of the form described was found, the relief of which effected a complete cure, as not a single attack occurred after the operation. From the above showing, neither phimosis nor balanitis appear to be the cause of nocturnal incontinence of urine in a majority of cases. It is certain that in many instances where one or both exist, there is no incontinence. He therefore suggests the possibility of glandulo-preputial adhesion as a specific cause of not only "bed wetting," but

of the other reflex phenomena referable to morbid conditions of the genital apparatus. When phimosis exists, there is always the possibility of adhesions also, which cannot be detected till circumcision or slitting of the prepuce has been performed, when it may either escape observation or be passed over as rather a complication than the real source of the trouble. He remarks that, in the single case of incontinence above referred to, in which there was only an accumulation of smegma, the incontinence had existed but a short time.

Diphtheria in Montreal.

With reference to the recent epidemic of diphtheria in Montreal, Dr. GEO. E. ARMSTRONG, Professor of Physiology, Bishop's University, Montreal, in a paper read before the Medico-Chirurgical Society of Montreal, November 25, 1887, says (*Canada Medical and Surgical Journal*, February, 1888):

I have found the cases of diphtheria in the present epidemic to be generally divisable into two classes. 1. *Very mild*, the exudation confined to one or both tonsils, and recovery taking place in from two to five days. 2. *Very severe cases*, the membrane spreading rapidly over the tonsils, soft palate, pharynx, and frequently invading to a greater or less degree the nasal fossæ.

I make this division also to draw attention to the question of diagnosis. It does not require a medical man to diagnose the severe cases, but are the mild ones true diphtheria? Many of these mild cases one is greatly tempted to call diphtheritic sore throat, a most evasive and unscientific term which I have never allowed myself to use. I believe diphtheria to be a specific disease having a specific cause, and that when that specific cause attacks a wound or new membrane successfully it produces diphtheria and nothing else. If there is an attenuated form of the virus producing a hybrid form of the disease I have no knowledge of it. I will illustrate what I mean by citing one series of cases only. A father came to my office with sore throat. The soft palate and pharynx are red and injected, and on the left tonsil is a small white patch no larger than a pea. Pain in swallowing. Temperature 101.5°, headache, and accelerated pulse. No enlargement of glands of neck. I tell the man he has a simple inflammation of the throat, and that it is not diphtheria, and sends him home and to bed. The next day the temperature is normal, and the third day he is out attending to business. Seven days after, the infant child of a boarder in this man's house takes sick. Another doctor is called, who sends the case to hospital as one of diphtheria. In three days the child is reported well and ready to be discharged, but this child is not brought back to the house where it took sick. In three days more my first patient's child is found to have unmistakable diphtheria, and in a few days dies. Now did this father have diphtheria, and did the children contract the disease from him, or was his a simple sore throat, and did the other cases develop quite independently? You will readily see the responsibility the answer to this question throws upon the medical attendant. This is only one of a large number of groups that I might mention.

I find this autumn that cases of tonsillitis, with a few white spots here and there over the surface of the tonsils, which I have hitherto regarded and treated as cases of follicular tonsillitis, if neglected and allowed to go about, soon have a very severe form of diphtheria, frequently ending fatally. Are these cases of

diphtheria from the first, or is the diphtheritic poison now so prevalent engrafted on these inflamed tonsils as a bed specially prepared to receive it? If the former, then I must confess I cannot diagnose follicular tonsillitis in its first stages. These cases occur suddenly, without a previous history of indisposition, are not accompanied by enlarged cervical glands, and have a temperature during the first twenty-four hours of 100° to 102° or 103°F. Is it true, as stated by Jacobi, that a locally injected new membrane confined to one tonsil is either traumatic or diphtheritic?

And just here I wish to draw attention to a statement of Prof. Jacobi (Pepper's System of Medicine) that one attack of diphtheria predisposes to another, and the oftener one has it the more likely are they to have it. I was taught the opposite of this—that when a man or child was said to have had diphtheria five or six times or more, that probably his attacks of diphtheria were only inflammations of the tonsils with a white exudation. My experience has corroborated that teaching, and in only three or four instances during the last ten years have I been satisfied that I have seen the disease recur in the same person. I cannot accept Professor Jacobi's teaching on this point, and would like to hear the experience of the members on this question.

I have had two cases of suppression of urine. One of these cases I saw only in consultation, and the urine had not been examined. In my own case, owing to a misunderstanding of the nurse, I was unable to get a sample. In this case the last urine passed was said to have been of normal color. In both cases the children presented symptoms of uræmic poisoning. In neither case was there any puffing of the feet, hands or eyelids. I should like to hear from those who have been fortunate enough to obtain post-mortems in these cases concerning the condition of the kidneys. Were there any evidences of acute nephritis as described in books or not? Was the suppression due to vaso-motor paralysis and deficient blood-pressure? or to failure of the forces which keep the blood circulating? In both the cases I have mentioned death soon followed.

I have found the proportion of cases of laryngeal complication unusually small. I have seen during the past six weeks but two cases. One, a little girl of 8 years, had a slight sore throat, without any exudation in the pharynx or on the tonsils. I saw her twice; supposed it to be ordinary sore throat; she then appeared quite well. A week later I was called, and found laryngeal obstruction, which ended in seventy-two hours in the usual way. The second case, a child of 15 months, had well-marked pharyngeal diphtheria, and recovered. The house was thoroughly fumigated, and the child remained well and lively for a week, when suddenly laryngeal obstruction occurred, followed by death in thirty-six hours, fourteen hours after the insertion of a tube into the trachea. Has any member any experience with intubation of the larynx? Would prolonged enforced rest in bed have prevented the extension to the larynx in these cases?

I have had five cases of what I take to be purely nasal diphtheria. Four occurred in one family. In none of these cases was there any pharyngeal trouble at all. No membrane could be seen in the nose, but all these cases had for forty-eight hours a temperature of 102.5° to 104°, with an offensive purulent discharge from the anterior nares and frequent hemorrhages from the nose, recurring five or six times in the twenty-four hours, and moderate enlargement of the

the cervical glands. They are all recovering, and so far there have been no complications in any of them. Another interesting group of cases which in my hands has invariably proved fatal, with one solitary exception. The group includes seven cases, and a description of one is a description of them all. A child has pharyngeal and nasal diphtheria and recovers. The throat is clean, temperature and pulse normal. The mother at the next visit tells you the child has vomited; you examine, and find temperature normal, but the pulse, which was yesterday 80, is 100; the next day 120 and weaker, and the heart gets weaker and faster in spite of absolute and enforced rest in the horizontal position and the use of cardiac tonics, until death takes place from cardiac failure.

Is the pathology of the failure of this heart muscle the same as in paralysis of the palate muscles and of the skeletal muscles? And only more disasterous in its results, because life must cease as soon as that muscle ceases to perform its functions? I take it that every one present is familiar with the literature of diphtheritic paralysis, and I hope some get more satisfaction from the discordant statements of various writers on that subject than I have been able to do.

My last question is: How long children and adults exposed to the contagion should be quarantined? One child in a family of several has diphtheria, and recovers or perhaps dies. If recovery occurs, all nasal-pharyngeal discharge has ceased. In either case the house is disinfected, we will suppose thoroughly. I will assume, as in many cases is the case, that the well children remained all the time at home, and that the father also remained at home to assist in nursing the sick one. Now how soon after the disinfection should the children be allowed to return to school and the father to his office or shop, as the case may be. I have made it an invariable rule not to grant certificates for fifteen days after the disinfection. I do this on the ground that cases are on record of children having been exposed to the contagion of diphtheria, but only developing the symptoms of the disease two weeks later—in one case fourteen days and eight hours after the exposure, and that these *may* give the disease to others during the period of incubation. I do not think it necessary to quarantine adults as long, because they are very much less likely to contract the disease, and therefore less likely to endanger others with whom they may be brought in contact.

Now, as this bears upon the subject of the spread of the disease, it is of the utmost importance that the truth should be known. There is a great difference of opinion in this matter among practitioners at present. The principals of the common schools find that some doctors give certificates immediately after the house has been disinfected. Others wait two or three or more days, and but few insist upon a period of two weeks elapsing. It is desirable, for many evident reasons, that it would be to the credit of the profession to have some limit set that would be safe, and of course not longer than really necessary.

Treatment of Infantile Syphilis.

M. FOURNIER, in a lecture on infantile syphilis, delivered at the Höpital St. Louis, sums up, in the following manner, a number of important as well as useful points in regard to the treatment of a child born under suspicious conditions.

1st. A child born healthy, at least apparently so, having a syphilitic father, should not be treated, because we know that the *paternal* heredity is much less

fatal than the *maternal* heredity, and that, consequently, there are chances of its having escaped syphilis.

2d. A child born healthy, or apparently so, of a mother *formerly* syphilitic and who has shown no signs of syphilis during her pregnancy, should not be treated; for, although there may be chances of its being syphilitic, there are also as good chances of its having escaped.

3d. A child apparently born healthy so far as external appearance can show, of a woman *recently* syphilitic, especially if she has shown venereal lesions during her pregnancy, should be treated *energetically from the moment of its birth.* For, it is certain that, notwithstanding all contrary appearances, the child is syphilitic and its syphilis, latent in character, may break out at any moment and produce grave accidents, which may even be fatal.—*St. Louis Med. and Surg. Journal*, February, 1888.

Mechanical Treatment of Vomiting in Pregnancy.

Dr. J. W. Flanders, in a paper published in the *Atlanta Medical and Surgical Journal*, February, 1888, says that nausea and vomiting in pregnancy is so common that it is regarded as a physiological necessity, and a majority get well without treatment. There are cases, however, which resist all treatment short of the complete removal of the cause. The belief by the people that vomiting is absolutely necessary for the well-being of pregnant women has no doubt caused a great deal of suffering where relief might have been obtained. He has often heard great fears expressed for pregnant women on account of the absence of nausea and vomiting, and for this reason one is seldom called on to treat those cases until their conditions have become alarming.

In 1875 a writer published in the *Maryland Medical Journal* his experience in the treatment of one of those uncontrollable cases. He was called into the country to see a woman in her first pregnancy, suffering from nausea and vomiting, and after exhausting his skill in the vain attempt to relieve her, and seeing that she could not live much longer without relief, suggested to her husband that he would have to produce abortion or his wife would die. He urged the doctor to do anything that gave any hopes of relief. He attempted to produce abortion by pushing his finger through the cervix and rupturing the membranes. Failing in this he returned to the city to procure assistance, and to his astonishment, when he returned, found his patient quiet, not having vomited since he left her. He did nothing more for her, and she went to term without further trouble.

In Pepper's System of Medicine Dr. Copeman, of Norwich, England, claims to have made the same discovery of this plan of treatment about the same time and in the same way.

Not long after the publication of the article referred to, Dr. Flanders says he was hastily summoned to see Mrs. S., who was pregnant for the first time. Realizing the fact that her case was a grave one, he lost no time in getting to her bed side. She had been vomiting several days—in fact, had retained nothing on her stomach for a week. Her extremities were cold and pulse not strong enough to be felt at the wrist, and she was in a state of low, muttering delirium, and vomiting a glairy mucus constantly. He gave her a dose of oxalate of cerium

and ingluvin combined, and oiling his index finger gently worked it into the cervix and pushed the uterus up. The vomiting ceased immediately. In a few minutes wine was administered, which was retained, it being the first thing her stomach had retained in a week. She went to term without further trouble; however, she was instructed to take a dose of lactopeptine after each meal.

Soon after this a physician, living in an adjoining county, called the author to consult about the case of a woman to whom he had been called a few days before, and stated that she had been vomiting about four weeks, and during all this time had retained nothing on her stomach. She was then reduced to a skeleton, and was so weak that she could not turn her head on the pillow without assistance. She had been under the treatment of another physician who had abandoned her to her fate. She was still vomiting a thin, glairy mucus. The mechanical treatment above described was suggested to him. He reported subsequently that he carried out the suggestions of Dr. Flanders, and that she had vomited only once afterward, and he thought that that was caused by some error in diet. In a remarkably short time she had so far recovered as to attend to her household duties.

Progress in Gynecology.

The merits of pessaries, antiseptics, the radical treatment of inflammatory diseases of the uterine appendages, etc., are still warmly discussed by gynecologists, but the Jubilee year is not so much associated with these familiar questions as with the treatment of uterine fibroids by electricity. M. Apostoli, who we have been informed was once a naval surgeon, like a distinguished British ovariotomist, has introduced a method of treating fibroid tumors of the uterus by the application of extremely powerful electrical currents. He has discovered certain precautions necessary to avoid weakening of the current, or its diversion from the track which it is intended to traverse. He has devised arrangements which insure regular dosages of electricity. To the whole extent of the mucous surface of the uterine cavity is applied a platinum sound connected with the battery by a rheophore; but puncture must necessarily be made when that cavity is inaccessible, and the artificial channel is then formed by negative galvano-caustic action. Recently, M. Apostoli has found that galvano-puncture is beneficial in a large proportion of other cases. The surface of the cutaneous pole at the lower part of the abdomen is extended so as to diminish the intensity of the current. This object is effected by a layer of wet potter's clay, about half an inch thick; over this is pressed a small plate of metal applied to the rheophore. The extension of the surface of the cutaneous pole prevents pain and burning the skin. A matter of high importance is the alleged difference between the action of the positive and negative poles. The positive pole, which possesses coagulating and hardening properties, is applied to the interior of the uterus when there is much metrorrhagia or leucorrhœa. When dysmenorrhœa or bulkiness of the tumor is the principal symptom, the negative pole is introduced into the uterus, as it acts as a solvent on the tissues. Thus M. Apostoli claims successful treatment of bleeding fibroids by the positive or hæmostatic intra-uterine pole; on the other hand he finds that large tumors may be diminished in size by the regular application of the negative intra-uterine pole, which, according to M. Apostili, causes atrophy of the tumor by cutting

off the supplemental circulation. He does not declare that a large fibroid can be reduced to nothing by this treatment, but he states that it can be made so small as to be no more dangerous nor inconvenient. M. Apostoli warns the profession that the electrical treatment requires skill and experience in the use of the battery, particularly when the negative pole is used. Care must also be taken not to wound vessels in the region of the cervix, and the vagina must be kept very clean. M. Apostoli further employs his electrical treatment for the cure of other diseases of the pelvic viscera in women. For the latest details the reader must be referred to M. Apostoli's own contributions, published in the *British Medical Journal* of October 1, page 699, and November 19, page 1094; both were read at the Dublin meeting of the Association. A strong controversy has been raised, and the merits of M. Apostoli's treatment are still being actively debated by gynecologists and medical electricians in the correspondence columns of the *Journal*. We have given to all sides a fair opportunity of expressing their opinion; time alone will prove the value of this innovation in gynecology, and when that value is determined, how interesting and instructive it will be to refer to the correspondence above noted.

At the Dublin meeting an interesting discussion on the management of anterior and posterior displacements of the uterus was opened by Dr. HALLIDAY CROOM. In connection with this subject reference must be made to Dr. SYMINGTON'S *Topographical Anatomy of the Child*, where the author throws grave doubts on the congenital anteflexion theory. LEOPOLD has published an important paper in the *Deutsche medicinische Wochenscrift* on the frequency of malignant disease of the ovary and the question of operative treatment, based on COHN'S paper which appeared last year, and consisting of Leopold's own experience. A fine scientific monograph on the various forms of tubal disease, by DR. MARTIN, of Berlin, was published this year in the *Zeitschrift für Geburtshülfe und Gynäkologie*. To DR. LEWERS'S researches in the same field we have alluded in the paragraph on the Obstetrical Society of London. Many practical papers on tubal disease and allied subjects by TAIT, GILL, WYLIE, BANTOCK and others, have been published in 1887. The French medical press has been enriched by some good communications on congenital malformations of the genito-urinary tract, which throw not a little light on the nature of Müller's and Gärtner's ducts. The best papers on the subject appeared in the *Progrès Médical*. Very important anatomically are GONNER'S "Two Cases of Catheterisation of the Fallopian Tube" (*Archiv für Gynäkologie*) instances, according to Dr. Gönner, where the uterine sound could readily be passed up the the tube. This subject is importance in many self-evident respects. Amongst other things it raises the question as to the distinction between passing an instrument through the tube and passing it through the uterine walls; and another question, already suggested by Dr. Matthews Duncan, of periodic or irregular natural potency of the tube.

Numerous papers on ovariotomy, hysterectomy, and total extirpation of the cancerous uterus have been published in British and foreign journals, reports of societies, etc.—*British Medical Journal*, Dec. 31, 1887.

Tarnier's Couveuse.

During the last two or three years Professor Tarnier has, by means of his couveuse, succeeded in rearing premature children who formerly could not have survived. The couveuse is a form of incubator with a glass lid, through which the child may be viewed. The two great indications in rearing premature children are to maintain heat and to feed. The first indication is secured by the couveuse in which the child is kept, except when it is moved to be fed or washed. The second thing is the feeding, and this he does by means of a stomach pump. It is in the form of a urethral catheter in red caoutchouc. To one end of this is attached a small artificial nipple. With this prepared the infant is laid on the operator's knees, the head slightly raised, the catheter, moistened, is introduced to the root of the tongue, when the infant by instinctive movements carries it down by the œsophagus, which it traverses very easily. When it has gone a length of about six inches, including mouth and œsophagus, the end is in the stomach. Then the liquid (asses' milk or other) is poured into the little funnel, and by gravitation runs into the stomach. In a few seconds the catheter is withdrawn; but this must be done rapidly, for if done slowly the liquid would follow the catheter and be rejected by regurgitation. Two and a half drachms of milk every hour is about enough for a very small child. By these means Tarnier appears to have succeeded in carrying vitality backward to a period hitherto unexampled. Thus infants of only six months or a little more have been reared and "the epoch of viability from a clinical point of view is now confounded with the epoch of legal viability." He calls this method "gavage."—*British Medical Journal*, December 31, 1887.

The Various Modes of Treatment of the Worse Cases of Flexion of the Uterus.

In a paper with this title, read before The British Gynecological Society, Dr. C. Routh, stated the following as his conclusions on this vexed question:—

I.—Where ordinary Hodge pessaries are used.

(*a*) No pessaries whatever should be used until such time as all inflammatory or congestive symptoms have been removed, and this is a *sine qua non* in all cases where the fundus uteri is tender or inflamed.

(*b*) Particular care should be taken to ensure an exact fit of such pessary to the affected person, and to prevent pressure on the fundus or bent angle of the flexed uterus. It should be removed for cleansing purposes, etc., every three or four hours for a few days, but again replaced—altogether kept in for a year. A shorter period can never, or very seldom, cure.

II.—In regard to intra-uterine stems.

(*a*) Whenever the canal is narrowed or obstructed at the point of flexion an intra-uterine stem is essential. In no case, however, should it be allowed to press against or even touch the fundus.

(*b*) Where the flexion is not very marked, the india-rubber stem may be used. If the flexion be great, it is best to support it by a buckle pessary and an internal stem again within it. In such cases, however, the solid diverging stem or buckle pessary is preferable.

(*c*) If the adhesions which force the uterus in a flexed position be strong, the

india-rubber steel spring pessary should be first tried. If the adhesions be too strong, oöphorrhaphy affords the only chance for cure.

(*d*) Intra-uterine stems, whether with or without buckle pessary, should be kept in for six or eight months.

(*e*) In cases of great subinvolution of the uterus, the stem should be thicker than in ordinary cases, and especially so if the flexion be very marked.

(*f*) Neither suspension of the uterus nor shortening of the round ligaments should be practised in cases of great uterine enlargement or prolapse.

The same objections hold in cases of firm and extensive adhesions, and great debility and relaxation of the ligaments.

(*g*) In all cases with marked prolapse the buckle pessary is the safest.—*Glasgow Med. Journal*, January, 1888.

How to Guard the Perineum while the Fœtal Head is Passing.

Dr. Berry Hart says (*British Gynecological Journal*, part x, 1887), that the best way of doing this is as follows: With the patient lying, of course, on her left side, the attendant places the thumb of his right hand, guarded by a napkin soaked in hot sublimate, in front of the anus and presses it gently there. The pressure is not in the direction of a line joining his thumb and the pubic arch, but merely in that of the axis of the pelvic outlet. By this, descent of the sinciput is hindered and that of the occiput favored. When the latter is beginning to pass under the pubic arch the fingers of the same hand are placed between it and the apex of the arch, so that when the occiput has cleared the arch the fingers are passed towards the nape of the neck, and the head thus grasped in the hand, the thumb lying over the sagittal suture. This gives one complete command over the head, which is now engaging in the diameters between the nape of the neck and forehead and face, and allows the whole passage with as little tear as possible.—*Glasgow Med. Journal*, January, 1887.

Case of Ovariotomy.

At a meeting of the San Francisco County Medical Society, December 27, 1887, Dr. O. O. Burgess reported a case of ovariotomy in a young woman where the operation had been rendered very difficult from the peculiar anatomical arrangement of the parts. The two ovaries had coalesced and degenerated so as to form one tumor, from each side of which, a tube, which at first sight resembled intestine, but was, on examination, found to be a Fallopian tube, passed to the uterus, while from the vertex of the tumor a fibrous band passed upwards and gradually disappeared in the peritoneum. The fact that the displacement of the uterus was in all probability congenital, its descent having been prevented by the fibrous band, made it very strange that there never should have been any disturbance of the menstrual function.

Dr. George Chismore had witnessed the operation, and regarded the case as one of extreme interest, it being the only instance in his experience in which the diagnosis of the character of the tumor was as difficult after the abdominal section as before it. The difficulty of the operation was very great, and no trace of ovarian tissue other than that forming the tumor could be discovered.

DR. J. O. HIRSCHFELDER was anxious to know whether the girl still continued to menstruate, as in such an event, the case might be able to throw considerable light upon the physiology of the menstrual process. The PRESIDENT suggested that any changes in the character of the menstrual fluid should be noted. Dr. Burgess replied that the girl had menstruated regularly since the operation, and that there was not any apparent change in the quality of the fluid.

DR. STALLARD thought that these facts tended to show that menstruation does not depend upon any one portion of the generative apparatus, for we had other cases similar to the one before the Society, in which both ovaries and tubes had been removed without arresting the monthly flow, and he therefore believed that the uterus and nervous centres were all that was necessary for menstruation. —*Sacramento Med. Times*, Feb., 1888.

Malarial (?) or Paroxysmal Nymphomania.

DR. J. P. FRANCEZ, in a paper read before the Attakapas Medical Association, Lafayette, December 6, 1887, reports the following case: G. G., married, 35 years old; mother of five children; native of Louisiana, and subject to malarial fevers for many years at intervals, if not from infancy. One of her aunts died insane; other members of family are dead from various other causes. Mrs. G. has suffered from dyspepsia for years, and previous to her marriage had been subject to two attacks of insanity. Her menstruation at first was tedious or difficult, but at the present time is quite regular and normal.

During last March she began to show dulness of spirits, and fits of great abstraction, causing feelings of indifference towards her husband, children and relatives. One day while sitting upright in a chair she fell prostrate to the floor unconscious. She was put to bed. After a few hours she became quite agitated, talkative and emotionally excited. She was then subject to hallucinations, saw devils, battalions of soldiers and disguised men surrounding her and attempting to force her domicile for the purpose of committing rape. She fought with those around her bed; called on her husband to stand by her side, seized her new born babe in her arms, and almost choked it to death before the attendants had time to take it away from her. This condition of mind continued twelve days; every second day more pronounced agitation was noted, and late in the evening fever occurred. The febrile movement could not be measured by the thermometer. During the fever and agitation her hands were seen to be between her thighs, violently shaking as if in the act of scratching; groans, murmurs and unintelligible language accompanied these acts.

On the 13th day the mind became lucid, the child was taken to the breast and the family affection seemed to reanimate her. Next night some agitation occurred with the same acts with the hands. When the intelligence became brighter during the acts, agitation and fever, she would call on her husband and order him to perform his conjugal duties, and repeated her summons for more than a month. On the nights and days free of fever no sexual disturbance was manifested.

The treatment consisted of bromide of potassium and chloral hydrate, sulphate of quinine, infusion of gentian root, muriatic acid diluted, pepsin, external application of iodine to the spleen, Fowler's solution of arsenic.

The author says he kept the case under this treatment for four months. She was discharged cured.—*New Orleans Med. and Surg. Journal*, Feb., 1888.

Methods of Cleansing the Peritoneum.

In the *British Gynecological Journal*, August, 1887, LAWSON TAIT insists on the greater safety which is insured by careful washing of the peritoneum, instead of using sponges, as was formerly done.

As an illustration of one of his methods of washing, an example is made of that kind of ovarian tumor which contains gluey material, and which does not easily run through a tube. In this class of tumor the cyst wall is extremely thin, and frequently gives way, scattering the gluey material about through the intestines. Sponging here fails to remove thoroughly this foreign material, which, however, can be removed by a stream of lukewarm water, in which it is easily soluble. In order to introduce the stream of water, use is made of one or other of two trocars. These trocars are simply curved tubes, having a very blunt, bevelled and chisel-shaped edge, provided with two eyelet holes through which the fluid may run. Two sizes are used, the larger being employed when a rapid stream is required, as, for example, when large blood-clots have to be removed in cases of ruptured tubal pregnancies; the smaller, in cases in which to make the washing thorough the stream requires to be slow, as in the case of gelatinous tumors, or the purulent and flucculent effusion met with in tubercular peritonitis. One end of the india-rubber tubing being attached to the trocar, the other is placed in a ewer of blood-warm water, which is then syphoned into the abdomen, the point of the trocar being made to travel in any direction which may be thought necessary. The soiled intestines, in order to be thoroughly cleansed, must be gently moved about by the fingers.

The water used should be of a temperature of 103°—107° F., a temperature which the operator's hand can bear with comfort. (A nurse's hand being so inured to the use of hot water cannot be trusted to test its heat.) Very hot water is sometimes useful in arresting the oozing from small bleeding points. In this case a stream of hot water of a temperature of 120° F. may be directed into the pelvis for a few seconds. No attempt is made to sterilize the water, as nothing but the ordinary domestic water from the tap is used, sufficient hot water from the kettle being added to raise it to the requisite temperature.

The method of cleansing the peritoneum by means of sponges, the author has almost altogether given up, as he believes that it is attended with much danger in the case of an inflamed peritoneum. He generally confines the use of sponges to the arrest of hemorrhage from small bleeding points, the pelvis being stuffed with them, while the sutures are being inserted.

Occasionally a sponge is used for the purpose of removing the remainder of the water used for washing, but of late a drainage tube put down to the bottom of the pelvis has been employed, and the fluid removed by means of a sucker. As soon as the pelvis is dry, the drainage tube is removed and the last stitch adjusted. To the method above described the author applies the word *primary*. For the *secondary* cleansing of the peritoneum the drainage tube is employed. At the present time this does not frequently require to be used in the case of ovarian tumors, owing to the fact that adhesions, caused by repeated tappings, are seldom present. Only in five per cent. of the author's cases of ovariotomy, has he employed drainage, and these were in patients of an advanced age, in

whom the power of absorption by the peritoneum is not so active as in younger ones.

It is in the operation for removal of diseased uterine appendages that the drainage-tube is found to be most serviceable. In this operation the bleeding from old adhesions, and from vessels which cannot be reached deep down in the pelvis, is often considerable. If sponge pressure fails, the drainage-tube is a useful hæmostatic. The nurse is directed to empty the tube every few minutes, so long as blood wells up through it. In some hundreds of cases operated on death from hemorrhage has only occurred once in the author's practice. In three cases life has been saved by the injection of solution of perchloride of iron through the tube on the bleeding surface. The explanation given of the hæmostatic action of the drainage-tube is that it permits coils of intestine to fall down from bleeding surfaces, and so economizes the force of those laminæ of clot which rapidly extend over those surfaces. By its use the fact that hemorrhage is occurring can be recognized, and further steps taken if it should prove to be serious. In those cases in which a hole has been torn in the rectum a wide tube should be inserted, through which the contents of the intestines may pass.

Owing to the fact that intestine and omentum rapidly become adherent round the tube, it is only during the first 70 or 80 hours that any drainage-tube is of use in cleansing the general cavity of the peritoneum. When effusion caused by a chronic inflammatory condition of the peritoneum is to be removed, a tube, exactly resembling a common test-tube, but perforated throughout its entire length by small holes, is employed. This form of tube is more useful than Keith's, on account of its not being open at the bottom, and therefore not being liable to punch a hole in the intestine by its own weight or being forced down by a heavy dressing. It is also much less open to the entrance of small pieces of omentum, and to the liability of becoming blocked. The holes being all over the tube the upper as well as the lower part of the abdomen are more effectually drained.

When the tube is used for the purpose of general cleansing it should be removed at the end of three or four days. When, however, it is used in abscesses or suppurating cavities it must be kept in longer, and after four days it may be well to substitute for it a soft India-rubber tube of small diameter.—*Medical Chronicle*, November, 1887.

Hydrocephalus.

Dr. James F. Goodhart, of London, in a paper on hydrocephalus in the *Archives of Pediatrics*, January, 1888, gives the causes of this affection as: (1) Cerebellar tumors (including tentorium and pons); (2) chronic inflammation and adhesions at the base of the brain between the medulla and cerebellum; (3) congenital malformations.

These, he says, no doubt act in one of two ways; there may be pressure upon the veins of Galen and the straight sinus, or there may be closure of the communication between the interior of the ventricles and the rest of the subarachnoid space. It might be thought that the pressure upon the veins, and the obstacle thus produced to the return of blood from the choroid plexuses, would be a sufficient and readier explanation of *all* cases; but it seems clear from the

occasional occurrence of congenital malformations, or of post-congenital adhesion and blocking of the aqueduct of Sylvius, that the mere closure of the ventricles is sufficient for the production of the affection. The congenital malformation is rare. Dr. Taylor has had one such case, the Sylvian aqueduct being obliterated, and it does not appear at first sight quite clear that the mere closure of the communication between the ventricles and the extra-ventricular subarachnoid space should so alter the conditions of the blood-pressure that its equilibrium is destroyed and hydrocephalus results. But it can be shown, he thinks, that this result is probable. It seems to him true, that by the conversion of the ventricles into a closed cyst, the ball-tap action of the cerebro-spinal fluid is in great measure rendered inoperative.

The points of his paper are these: that many every-day occurrences of practice are called hydrocephalus which are not so, and for purposes of discussion this may be taken to include, for time is wanting for specific allusion to the subject, that hydrocephalus and rickets are not often associated, as is very commonly asserted; that hydrocephalus is an infrequent occurrence, due to one of two or three conditions of advanced and irremediable structural change.

As regards the treatment, he is not very hopeful, but thinks the only treatments possible, are the old-fashioned ones of firm strapping, the rubbing in of mercurials in such cases as may seem to be of inflammatory origin, and tapping. Believing as he does, that the consolidation of the bones is a bar to the occurrence of hydrocephalus, he does not believe that systematic support, recommended by Gölis, Trousseau, West, and others, has often been carried out with sufficient patience, and is inclined to believe that in suitable cases, paracentesis is deserving of a wider range of practice than it has received. None of these things can, in the nature of the case, show a large percentage of successes. "But," he concludes, "this is not the only occasion on which it happens that 'if by *any* means I can save *some*' must be our guiding principle and aim."

Death of a Parturient Woman from Hydronephrosis.

Dr. Helen W. Bissell reports the following case in the *Med. Record*, December 10, 1887: M. M——, a primipara, thirty years of age, was admitted to the New England Hospital for women and children, Boston, Mass., at 4.40 A. M., Aug. 21, 1887. She appeared in fairly good condition, and walked without assistance. She was then having pains every five minutes, and stated that they began at 2 A. M. The cervix was found to be obliterated, the os dilated to about 1¼ inches, the head low down, fixed, and apparently large and incompressible. The urine, of which the woman passed eight ounces after entrance showed albumin present to the extent of two and a half per cent.; specific gravity 1008; no casts. She gave no history which would lead to a suspicion of renal disease; there was no œdema of the ankles or face. The external measurements of the pelvis were slightly below the normal.

The head advanced slowly, and with each contraction of the uterus a mass of hemorrhoids was protruded from the anus, equal in size to a large orange, and simulating extensive prolapsus of the rectum. At 7 A. M. the os was dilated, membranes ruptured, the pains were hard and frequent, and the patient was apparently in good condition, with the exception of the hemorrhoids, which

gave her great pain. At 8.45 her pulse became suddenly weak and rapid; a stimulant was administered and repeated from time to time without effect, her pulse remaining at 126. At nine o'clock a little mucous in the trachea troubled her during each pain, which in a few moments became more marked; she began to suffer from dyspnœa, and coarse and fine ráles could be heard throughout the chest. At each contraction of the uterus the dyspnœa was so extreme that the patient became cyanosed and gasped for breath. At this juncture forceps were applied, of course without the administration of ether; but as a great amount of force was found necessary, and with each traction of the forceps the pulse became more feeble and running, the œdema greatly increased, and death seemed imminent, their use was for the time being suspended. A hypodermic injection of morphine and atropine was given, which alleviated the symptoms for a short time. After this the patient grew steadily weaker, the respirations were more hurried and shallow, the finger-ends and lips became livid, and a large amount of frothy mucous and blood was expectorated. Death took place at 10.25 A. M. Forceps were immediately applied and a dead child, weighing nine pounds, was delivered. The fœtal heart had not been heard for an hour and a half previous to the mother's death, and the patient had stated when she came in that she had felt no movements for three days. Slight twitchings of the hands at the last were the only convulsive movements.

A post-mortem examination showed the upper two-thirds of the left kidney to be represented by a sac the size of a peach, the ureter connected with this being six inches long, dilated to the size of a broomstick, and containing a cloudy fluid. The lower third of this kidney contained a small amount of green substance, in which the distinction between the cortex and pyramids could be made out. The pelvis was much enlarged, and there was a separate ureter extending from this to the bladder, dilated through most of its course, and constricted 1¼ inches above the bladder. The right kidney was one-third larger than the left, and was dark in color, the capsule being detached with ease. On section the usual relation of cortex and pyramids was found, the surfaces presenting a uniform dark-red appearance; the distinctions between the tubular regions were lost. The pelvis was dilated; and the ureter also, as far as the brim of the pelvis, was dilated to the size of the little finger and distended with fluid, but below the brim it was of normal size. The floor of the bladder was somewhat thickened, and there was a diverticulum the size of an English walnut in the neighborhood of the trigonum. There were six ounces of urine in the bladder. The urethra was of normal size throughout. The uterus and ovaries were in a normal condition. The pleural surfaces were adherent in circumscribed spots on both sides. Both lungs were œdematous, with density somewhat increased.

Examination of the brain showed an excess of blood in the pia; the gray matter of the cortex, of the hemispheres, and of the cerebellum was of a slightly purplish hue; puncta crenata were rather large.

V. SURGERY.

Penetrating Wound of Stomach and Transverse Meso-colon successfully treated by Abdominal Section.

At the meeting of the Royal Academy of Medicine in Ireland, on Friday, December 9, Dr. CHARLES BALL brought forward the case of a boy, aged fifteen years, who was admitted into Sir Patrick Dun's Hospital on March 29, 1887, immediately after having accidently stabbed himself in the abdomen with a half-inch chisel. The accident was stated to have occurred in the following way:— He was pushing a chisel into a handle, and for this purpose he held the blade with both hands, with the cutting edge towards his abdomen, and firmly pressed the handle against the wall. His hands slipped, and the blade perforated his abdomen about half way between the tip of the ensiform cartilage and the umbilicus, and above a quarter inch to the right side of the linea alba. When admitted he was somewhat collapsed, but otherwise there was no indication at the time of serious internal injury. The collapse, however, became more marked, and two and a half hours after the injury he vomited part of the contents of his stomach stained with blood. The vomiting became frequent and the quantity of blood considerable. Dr. Ball saw him four hours after the injury; he was then profoundly collapsed; he vomited blood at frequent intervals, and at each effort to vomit a stream of blood spurted out at the abdominal wound. The whole abdomen was dull upon percussion, obviously due to the peritoneum being filled with blood. An incision about three inches long was made in the middle line, between the ensiform cartilage and the umbilicus, and the chisel wound connected with it. As soon as the peritoneum was opened a considerable quantity of blood gushed out. The stomach was found to be wounded. A clean cut existed in the great curvature about half an inch in length; it was not bleeding. The mucous membrane, though perforated, was not prolapsed, and none of the contents of the stomach were found extravasated. The wound was sutured by passing a fine catgut suture, after the method of Lembert (but continuous), four times across the wound, only including the serous membrane; the ends were then tightly tied, thus absolutely closing the opening, and at the same time puckering up the serous membrane, and bringing a considerable area on each side of the wound into apposition. The omentum was reflected upwards and search made for other wounds, as copious bleeding continued. An opening in the transverse meso-colon, near its spinal attachment, could be felt with the finger; and upon sponging away the blood it was found that a large vein was wounded, to which, with some little difficulty, a catgut ligature was applied. The patient vomited shortly after the operation, but the vomit was devoid of blood. He was allowed nothing by the mouth except small pieces of ice for six days,

and was fed by nutrient enemata of artificially digested food. From the 6th to the 14th day he was allowed gradually increasing quantities of beef tea and milk, and he was then allowed solid food. On the third day he vomited some pieces of onion, quite unchanged, which he stated he had eaten the morning of the accident. Four weeks after the operation he was discharged from the hospital quite well. The single wound in the stomach was accounted for by the suggestion that it had been made with the angle, and not with the full cutting edge of the chisel; and it was thought that the instrument, after wounding the stomach, passed through the great omentum and thence through the meso-colon. In this case the great danger arose from the large vein wounded, and but for the timely intervention of the surgeon would have proved fatal by hæmorrhage in a very short time.

The PRESIDENT pointed out that Prof. Otis, writing on the surgery of the American war, had emphasised the necessity of opening the abdomen in cases of gunshot wounds, while he disparaged the old method as ostrich surgery. Dr. Ball had shown that the bolder plan of facing the enemy was the better, and he deserved praise for having the intelligence to conceive and the courage to carry out the operation.

Mr. HEUSTON was unable to understand certain points of Dr. Ball's communication in reference to the visceral injuries recorded, as from Dr. Ball's description it would appear that the only parts injured were the anterior surface of the stomach in the region of the pylorus and the transverse meso-colon. From the relative positions of the abdominal wound and the stomach injury, the chisel must have passed in a direction backwards and to the left. Assuming that to be the case he could not possibly understand how the only other injury was to the transverse meso-colon, since to reach the transverse meso-colon it was absolutely necessary that the chisel, unless it pierced the posterior as well as the anterior gastric wall, after causing the stomach injury, should pass through the great omentum between the stomach and transverse colon, thus obtaining entrance into the lesser sac of the peritoneum.

Dr. ATTHILL, adverting to the vomiting, said he had seen the same after ovariotomy. No food had been taken before the operation, but food taken after the operation had been rejected perfectly undigested after the lapse of some hours. This phenomenon he attributed rather to the paralysis of the stomach from the anæsthetic than to the effect of the injury. Hence there might be the two causes instead of the injury alone.

Dr. BALL replied. Mr. Heuston's criticism showed he had not been sufficiently explicit. As soon as the abdomen was opened the first thing found was the wound in the stomach, which was sutured up. Then the omentum was reflected, and he searched through the coils of small intestines to see whether any of them had been wounded. The descending layer of transverse meso-colon had attracted his attention when feeling over the surface, and in it he felt the opening. The moment he put a sponge down upon it there was a great gush of blood. To his colleagues and himself it occurred that the blood was coming from the vena cava, it was so free. The chisel, he believed, reached the transverse meso-colon by perforating the great omentum; but he did not see any wound. As regards Dr. Atthill's theory, if the rejection of food was simply due to the

anæsthetic, why did it not occur consequent on other operations in which the abdominal cavity was not opened?

The Treatment of Peritonitis by Laparotomy.

The idea of opening the abdomen and washing out the peritoneal cavity for peritonitis seems to have been suggested as far back as 1848, but the practice, for reasons which it is not difficult to conceive, has progressed but slowly. It was first proposed for acute peritonitis, and later on it has been employed with marked success in the treatment of encysted and tubercular peritonitis. The discussion which took place at the Clinical Society of London, November 11, on several papers bearing upon this subject, was full of interest, and gives a good idea of what has so far been accomplished in this direction. So far as concerns suppurative peritonitis, the rules apply which apply to suppuration in serous cavities elsewhere—the knee joint, for example. There is practically no alternative save the "expectant" treatment, which, with the brilliant record of cures before the profession, would be altogether unjustifiable. The only point on which opinions differ is as to the desirability of draining the peritoneal cavity through the abdominal wound. Mr. BARWELL is strongly opposed to this, as useless and possibly dangerous, for mechanical reasons, but was evidently partial to the idea of daining through Douglas's pouch in female patients. The latter procedure is viewed with some disfavor by gynecologists in their abdominal operations, and appears to have dangers of its own. The question, therefore, is whether drainage is indispensable, or whether it is not. Mr. Barwell maintains that it is best dispensed with, and produces his patient in support of his contention; MR. FREDERICK TREVES, on the contrary—and he expressed the opinion of most of the speakers—considers drainage an essential step in the operation. Experience alone will show which is right; possibly there are varieties which may require it, and others in which it is less essential. The operation has not yet been performed on a sufficiently large scale to enable definite rules of conduct to be laid down, but common sense would suggest that if drainage of any kind be thought desirable, it should be planned with due regard to the law of gravitation. Surgeons of the old school cannot fail to be surprised at the ease and safety with which the peritoneum can be cut into, sponged and irrigated. This is especially the case when the membrane has been the the seat of chronic inflammatory changes, as in tuberculosis. The result in many cases would seem to warrant the use of the word "cure," in reference to the tuberculous condition which was proved to exist. Not only did the local tubercular lesions become quiescent, or even disappear (so far as can be judged), but any pulmonary symptoms also underwent marked improvement. In a paper read before the congress of German surgeons, recovery took place in thirty out of thirty-six cases. If the diagnosis of tuberculous peritonitis is to be accepted—and every precaution would appear to have been taken to ensure its accuracy—then our views of the pathology of tuberculosis must needs be modified. This indeed may underlie the reluctance manifested by many eminent authorities to accept of the natural conclusion to be drawn from the startling results obtained. A more mature experience will enable us to ascertain with greater precision the indications for treatment and their bearing. An important case bearing on the

subject is reported in the *Meditzinskoië Obozrenië*, No. 12, 1887, p. 1177, by Dr. A. J. KARMILOFF, house-surgeon to the Moscow Military Hospital. This was an instance of purulent, circumscribed peritonitis cured by antiseptic abdominal section, with subsequent drainage. The patient, aged sixteen, a weak, extremely anæmic, and emaciated pupil of the Moscow School for Medical Assistants (*Feldshers*), was suddenly attacked by acute perityphlitis. About the end of the third week he was transferred from the medical wards to the surgical ones, where there were found all symptoms of suppurative inflammation of the peritoneum in the hypogastric and mesogastric regions, up to a transverse line slightly above the umbilicus. At the same time the presence of pus within the left half of the scrotum was detected. An aspiration along the white line of the abdomen drew out pus. A median incision (reaching from the pubes up to the navel) having been made, a quantity of offensive gas and thin, flaky, purulent fluid escaped. Two fair sized drainage-tubes, each eight centimetres long, were inserted into the wound, and the peritoneal cavity thoroughly washed out with a warm 1-30 per cent. solution of sublimate corrosive, until the returning water became quite clear and limpid. About a week later the scrotal abscess was cut into and drained. On the twenty-second day after the laparotomy the patient could sit up in bed; on the twenty-ninth he was up and about; and on the thirty-fourth left the hospital quite well and strong. The abdominal wound healed by first intention. A case of diffuse purulent peritonitis successfully treated by antiseptic laparotomy, and drainage has been recently reported by Professor Appolon G. Podrez, of Kharkov, in the *Vratch*, No. 46, 1886. While pointing to the cases, as well as to that of Lueke, Caselli, Lavensi, Valer, etc., Dr. Karmiloff repeats Caselli's words: "It is time to take the treatment of purulent peritonitis from the hands of physicans, who are powerless in their struggle with that disease, and to hand it over to the care of surgeons."—*Brit. Med. Journal*, Nov. 12, 1887.

Extra-Genital Chancres.

The importance of extra-genital chancres, and their relations to the public health, is such that it cannot be overestimated by the physician. For instance, an individual with a chancre of the lip may be the means of inoculating a number of others who are entirely innocent; or a nurse with a chancre of the nipple may be the means of spreading the disease, although this latter is not so likely to occur in this country as in others where wet-nurses are more often employed in families. M. Morel-Lavallée contributes the record of two interesting cases of extra-genital chancre to the *Annales de Dermatologie et de Syphilographie*. The first case reported is comparatively rare, on account of the unusual site of the lesion. A blacksmith of 39 had an erosion in the left nostril on the nasal septum. The patient remembered having a sore nose and having frequently picked it with his finger after having handled a woman in all probability syphilitic. The second case was a seamstress of 24, who was affected with two chancres of the upper lip and one of the lower. A peculiarity was that these lesions had an impetiginous aspect. In this case the chancres were probably unnoticed by the patient for over a week, a period sufficient to expose her family to contamination. It is on this account that it is always well to make some application which will deter others from submitting to kisses.—*St. Louis Medical and Surgical Journal*, February, 1888.

The Painful Forms of Cystitis.

HARTMANN, in his thesis for the doctorate (Paris, 1887), says that under certain conditions cystitis, of whatever nature it may be, is characterised by a peculiar aggravation of the pain which it provokes. Intense pain is then the prominent symptom which demands urgent intervention. This is a subject which has engaged the attention of Professor Guyon. Hartmann studies in detail the conditions which induce this symptom, and its characters; then he treats of the medical and surgical means for its relief. He warns against distending the bladder with fluids, lest it give rise to an aggravation of the pain. In the severer cases of painful cystitis he recommends cystotomy, and considers that tuberculosis is not a contra-indication to its performance. Hartmann adopts the general rule that whenever painful cystitis resists treatment an operation is indicated; and the procedure which Guyon usually recommends is supra-pubic cystotomy, as it permits the vesical lesion, whatever it may be, to be directly dealt with.—*Medical Chronicle*, Nov. 1887.

Paralysis of the Musculo-Spiral Nerve following a Fracture of the Humerus; Successful Operation.

At a meeting of the Medico-Chirurgical Society of Glasgow, on November 25, 1887, JOHN BARLOW, M. D., F. R. C. S., reported the following case:—On February 16, 1887, B. G., aged ten years, was playing with some school companions in one of the public streets, and was knocked down by a cab horse, the wheels of the cab passing over his right arm. Dr. Barlow, saw him soon afterwards, and made out a comminuted fracture of the humerus, about two inches above the elbow joint, with much bruising of the soft parts about the joint. The usual splints were applied, with fomentations for the first two days. There is nothing worthy of note in the treatment of the fracture, beyond the occurrence of pain and some numbness in the forearm and hand from the 4th to the 6th day, which was attributed to the swelling, and speedily disappeared.

The splints were removed and reapplied three times, and at the end of six weeks were removed, the fragments being then firmly united. The boy was directed to use the limb. Upon seeing him upon April 7, a week later, the author was much surprised to find the boy with paralysis of the extensor muscles of the wrist and hand, and loss of sensation over the back of the thumb and index finger. For a few days he hoped that the paralysis was due to the posterior inter-osseous nerve being pressed upon by the swelling below the joint, which was now rapidly disappearing. The use, however, of the interrupted, continuous, and induced electrical currents, upon the 10th, speedily undeceived him, for he failed not only to obtain contraction of the extensors of the fingers, but also of the extensors of the carpus and of the supinator longus muscle. In short, there was complete paralysis of the parts supplied by those branches of the musculo-spiral nerve which are given off below the level of the seat of fracture. For a week the continuous current was employed with friction of the extensor surfaces, the hand being kept hyper-extended at the wrist, so as to relax the extensor muscles. At the end of this time it was evident, not only that there was no improvement, but that the paralyzed muscles were rapidly wasting.

Upon April 18, the boy was admitted into the Royal Infirmary, Mr. Clark having seen the case and confirmed the author's opinion as to the necessity of an operation. Next day, or 61 days after the accident, Dr. Barlow cut down upon the seat of fracture, and without any difficulty found the nerve lying in the space between the supinator longus and brachialis anticus muscles. Above and below the fractured point the nerve was normal, but for a distance of half an inch it disappeared from view and was imbedded in callus. By means of a chisel he cut through, and raised a wedge-shaped piece of bony callus in which the nerve was enclosed, and then carefully, by means of knife, dissecting forceps, and fingers, the callus was sliced or broken away. The nerve was enlarged and reddish in color. The wound was dressed in the usual manner, and the arm and forearm placed in a position of extension, the object being to prevent the nerve from falling into the trough in the bone which had been made. No trouble was given by the wound, which healed up in a few days.

From the third day after the operation the continuous current was passed through the affected muscles, but no muscular contraction upon interrupting the currents was noticed in any of the muscles until May 25, thirty-six days after the operation, when a slight response was obtained from the extensor indicis muscle. From that date the muscles began to respond, and on June 9 it was noted "that all the muscles now respond, and the boy has recovered the power of voluntary motion in the supinator longus and carpal extensors. He cannot, however, even raise the fingers from the table, and the electrical response of the muscles of the thumb is feeble." The power gradually returned to the other muscles, and on June 21, four months after the accident, and two months after the operation, it was noted that he can now raise the fingers from the table; and when the arm is held at right angles from the body there is no wrist drop. He was ordered to return to the infirmary in order to have the continuous current applied. This he did for two weeks, and was then dismissed well.

Looking back upon the symptoms, he has often thought that a mistake was made in not attaching greater importance to symptoms of pain and slight numbness complained of from the 4th to the 6th day after the injury. For these seem to have been an indication that the nerve was beginning to be compressed by the fragments and the inflammatory exudation, and would probably have been remedied by a readjustment of the fragments, and of the splints and bandages. In self-justification he pleads that the pain lasted only for two days. It may be said, he remarks, that an operation was unnecessary—that the callus would have been gradually absorbed, the nerve relieved and the paralysis removed. But with the complete absence of reaction in the muscles to strong electric shocks, with rapid wasting of these muscles—conditions confirmed by Dr. Macintyre—it appeared to be necessary to relieve the nerve without delay. And had this not been done he feels sure that if the nerve had, in course of time, been relieved by the absorption of the callus, the return of voluntary power to the atrophied muscles would have been slow, imperfect and probably impossible.

One effect upon the author's own mind has been to extend the period of time in which, after compression of the nerve strands, whether peripheral or central, as in the spinal cord in dislocation of the vertebræ, we can hope to get good results after removal of the compressing force. For five weeks after the

operation there was no response in the muscles to the electric current, and one can understand how often a doubt would arise as to any good result following. He certainly thought during this period that perhaps it would have been better to have resected the compressed portion. But all doubts were scattered by the steady daily application of the continuous current.

A somewhat similar case was shown to the same society five years ago, by Dr. Whitson, in which the paralysis was due to a spiculum of bone, and in which, after operation, there was almost complete restoration of motion and sensation.

Dr. Macewen thought the results in this patient, as in Dr. Whitson's, were very satisfactory. He had seen similar cases of paralysis, in which, owing mainly to the long period of time which intervened between the injury and the operation, the results were unfortunate and unsatisfactory. He believed that where there was reason to fear that a nerve or other tissue was lying between the fragments of bone, it would be right to convert a simple into a compound fracture, in order to be sure of the condition of parts, and, if wrong, to rectify the position.

Dr. Coats referred to the changes which take place in the distal end of a divided nerve, and was of opinion that, unless in cases of primary suture, before there could be restoration of function, there was virtually a new formation of nerve fibre extending from the central end of the nerve to the terminations in the tissues. He could not say what was the limit of time beyond which such new formation with restoration of function would not occur.

Mr. Clark had been much interested in this case, as he had charge of the patient during Dr. Barlow's absence from town, when the symptoms of pain, which possibly indicated the commencement of nerve pressure, were complained of. He did not think the pressure in this, as in Dr. Whitson's case, was due to a spiculum of bone, but to its being imbedded in callus, which was sufficiently soft to be pared away with a knife. The portion of nerve imbedded was larger than normal, as if there was a certain amount of neuritis present.—*Glasgow Med. Journal*, January, 1888.

The Surgical Treatment of Tubercular Consumption.

Thomas Sinclair, M. D., F. R. C. S., Eng., Surgeon to the Ulster Hospital, and Assistant-Surgeon to the Royal Hospital, Belfast, gives the following *résumé* of this subject which is now attracting increasing attention: The growing disposition manifested by physicians to enlist surgical aid in diseased states, hitherto regarded as purely medical, is attributable, partly to the failure of internal medication in many of these states, notwithstanding the flood of light recently thrown upon their pathology, and partly to the startling successes achieved by surgeons in operations of great magnitude and brilliance. The wave of confidence which now flows in the direction of surgery, on account of the leading position latterly assumed by it, is of greater dimensions than the progress directly ascribable to surgery appears to warrant. Much of the recent surgical advance is due to the more exact knowledge of the causation of disease, and to the more accurate interpretation put upon signs and symptoms by physicians, leading them to form wonderfully correct estimates of the site, extent, and nature of many affections usually subjected to medical treatment only.

The surgery of the lung, which is yet in its infancy, includes the operations of; 1. Pneumonectomy, or excision of a portion of a lung; 2. Pneumonotomy, or the incision of lung tissue with a view to drainage of a cavity; 3. The injection of absorbent or antiseptic solutions into pulmonary consolidations or cavities. All of these have been applied in the treatment of tubercular consumption.

1. With regard to the ex-section of portions of a lung, it should be borne in mind that Biondi, of Naples, has performed the operation with invariable success in sheep, dogs, and cats. Parts of one lung or both apices were thus removed. Even the extirpation of an entire lung proved fatal in only half the experiments on these animals. Later, the same observer injected parts of the lungs with tubercle in similar animals, and after several weeks, when signs of tubercle had appeared, extirpated the effected portions—none of the animals dying of tuberculosis. The operation has been carried out on only one human being, with a rapidly fatal result (Druitt), and possibly most will hold with Dr. Douglas Powell that pneumonectomy "cannot yet be considered within the range of practical surgery." Nevertheless, one cannot but admit that the removal of a diseased portion of any tissue the seat of tubercle, which may destroy life by its local ravages, or by general infection, is sound in principle, and in consonance with the modern doctrine of tuberculosis. What fails is our knowledge of the cases suitable for such heroic treatment, and the manner of performing the operation so as to offer some prospect of recovery.

2. The second operation, that of pneumonotomy, though by no means so disastrous as pneumonectomy, has not had a very encouraging record when applied to tubercular cavities. This operation does not appear to have caused death *directly*, though the hemorrhage incident to incisions in lung tissue, when deep, is usually copious. The benefit accruing from pneumonotomy has not been striking. The class of cases of lung cavity offering any inducement for its performance are those of unilateral disease presenting one large cavity, situated near the lung periphery, with adherent pleura, with difficulty of coughing up the putrid contents, and smart feverishness. Basal cavities appear more favorable than apical, possibly because they are more suitable for drainage; apical cavities, by the aid of gravity, inclining to empty themselves by the respiratory passages; and possibly, also, because the basal are more frequently examples of pneumonic phthisis, while the apical are usually tubercular. Further, the probability of overlooking the existence of other cavities besides the large one subjected to operation is very great, and the not remote possibility, that the disease is not confined to a single lung, forces one to conclude that the general application of the method must wait upon more exact diagnosis as to seat, extent, and number. At any rate, the decision is one to be made by the physician rather than the surgeon, and, recollecting that cavities have a tendency to discharge by the bronchi and heal in many cases, the plan is not to be hastily adopted. As Dr. Powell remarks, "excavation is a conservative process, in so far as it results in the removal of morbid materials that are far more injurious than vacuity; and it often is the prelude to changes of a healing kind."

If we admit a general resemblance between the processes of tuberculosis and pyæmia, recognizing in the retained putrefying tubercular pus a source of septic matter for absorption and consequent fever, then the free drainage of such a

lung cavity should to some extent diminish this absorption and fever by removing the source. But it is just here, it seems to me, that the measure is not thorough, for it is not practicable to roughly scrape the interior of such a tubercular cavity in the lung and get rid of the really active and growing tubercle round its walls, as is possible in the treatment of a tubercular abscess in bone, in subcutaneous tissue, in lymphatic glands, or by the scraping or excision of a tuberculous joint. Moreover, those who have examined, *post-mortem*, many tuberculous lungs must have observed how seldom, even when only one cavity is presented, the surrounding pulmonary tissue was free from small secondary tubercles, scattered to distances beyond reach or calculation, which would defeat the operation. The occasional pointing of such cavities through the thoracic walls, with discharge of their contents through sinuses, is suggested as an additional inducement to treat them by pneumonotomy, in imitation of nature.

The operation presupposes a very exact estimate of the size and site of the cavity, which should be marked by a circle on the skin. The incision is made along the lower margin of the space which crosses the centre of this circle, though in some cases it is better to resect one inch of rib at this spot. It is also of importance to indicate by a larger circle the surrounding area of dulness. Should the pleura not be found adherent at the time of operation, this must be carried out in two stages, with a three-day interval, during which adhesion takes place, facilitated in some of the recorded cases by suturing. Up to this point the strictest antiseptic precautions are adopted for fear of violent pleuritic complication. The pleural cavity being shut off, a fine aspirating needle, under slight vacuum pressure, is thrust in, it may be in several directions, till the cavity is found; a large trochar and canula are then thrust in, and the canula left in position. Mr. Gould introduces a drainage-tube through the canula, and withdraws it also. Another plan is to incise the lung with a bistoury along the needle as a director, and then to introduce a pair of forceps, and tear a hole sufficient to admit the finger, after the manner suggested by Hilton for opening abscesses. Koch, of Dorpat, thrusts a thermo-cautery from the axilla, after resection of a rib, into the lung to a great depth, boldly, washing out the cavity with an antiseptic solution, and reports favorably in two cases.

It is, however, in bronchiectatic cavities and those of fibroid phthisis that the operation is likely to prove useful, marked improvement as regards cough and the amount of sputum generated having been noted in some cases of the former condition. Having regard to the chronicity of both these states, without medical or surgical help, it is not irrational to anticipate some good from the proceeding, and it remains to be demonstrated if really any prolongation of life can be achieved in such cases. In abscess in the lung in localized gangrene and hydatids a still more successful future lies for pneumonotomy.

3. The injection of medicated solutions next requires notice:—The plan of injecting tubercular cavities during hæmoptysis with tannin has been tried by Dr. Theodore Williams. Dr. Mosler, of Griefswald, in three cases injected permanganate of potassium, through a very fine syringe, and in a patient with hæmoptysis a weak solution of perchloride of iron. All that can be said as to his results, however, is that none of the subjects were injured.

Dr. Pepper of Philadelphia, has also three cases to his credit, and reports favorably upon one case. He employed 4 to 10 ♏ of Lugol's solution (liq. iodi., B. P., 4 ♏—℥i.), introduced through No. 1 aspirating needle under local anæsthesia at the moment of completed inspiration. Dr. Pepper recommends the same treatment for solid caseous infiltrations.

Professor Lépine and M. Truc, of Lyons, have given an extended trial to a tincture of creasote, 2 or 4 per cent., in similar cases, with the result that in 15 cases no improvement has been noted, but on the other hand no harm was done, though the amount of the solution used was, in a few instances, 5 fluid drachms and a half.

I think it is necessary to a calm judicial inquiry into the value of operative treatment of tubercular consolidations and cavities in the lungs, to recognize the more hopeful prognosis that seems warrantable from the revelations of the *post-mortem* room. I have myself performed many examinations of this sort in subjects dead from a variety of causes, and have examined large numbers of lungs when engaged in the dissecting-room of Queen's College, Belfast. I have been struck with the frequency of apical and other cicatrices, indicating the cessation of destructive action long previously. Moreover, in cases of senile phthisis, which is commoner than I was inclined to suppose, there were frequently cicatrices to be found, suggesting the likelihood of the disease, so late in life, having resulted from recrudescence of obsolescent tubercle, the deposit of which dated in all probability from early life. At this time it was active for a little, then ceased, and, after a long interval of dormancy, broke out afresh from some new stimulus.

Again, the etiological theory favored by Dr. Hermann Weber, and very extensively assented to, that tubercle depends upon something received from without, the operation of which is at first local, becoming general later on, dictates that the extirpation of the part first infected, while as yet the disease is local, offers some prospect of radical cure. Whether this something be the bacillus tuberculosis, or some other *materies morbi*, need not here be discussed. In support of this doctrine may be cited the fact that children of parents saturated with tubercle are rarely, if ever, tuberculous at birth, but develop the disease in some part of their anatomy at a later period, after exposure to some external exciting cause—the hereditariness of tubercle resolving itself, therefore, into a transmitted receptivity, which requires a stimulus from without to develop the malady, in this respect contrasting with syphilis, a transmitted disease. The stimulus may be climatic, or arise through employment, social conditions, etc. The infectiousness from person to person is not here specially insisted upon. The acceptance of this doctrine, and the evidence of the *post-mortem* room already cited, together with a not inconsiderable number of clinical facts in reference to the curability of tubercular states, warrant a suspension of judgment upon the surgical treatment of phthisis, and at the same time license further trial in this direction. The stricture passed by Dr. Hughes Bennett in Reynolds's System of Medicine is too absolute and premature when he says, "the result of all these efforts has been—what an intelligent consideration of the pathology of the disease might have anticipated—a uniform failure." The keynote of modern teaching in this relation is that

there is a tendency to repair in tubercular affections under favorable circumstances—the lung cicatrices, the ankylosed joints and spines, the closure of abscesses pointing to more painstaking treatment and more cheerful prognosis. —*Dublin Journal of Medical Science*, June, 1887.

Cutaneous Photography Made Easy.

Dr. Henry G. Piffard, of New York, in a paper read at the meeting of the New York Dermatological Society, December 20, 1887, says: The desirability of keeping a permanent pictorial record of important and interesting cases of cutaneous diseases is fully appreciated by every working dermatologist; but thus far the difficulties in the way of giving this practical effect have been so great that comparatively few pictures have been taken except by those who have given the matter special attention. The chief obstacle has been the difficulty of securing in the consulting-room a sufficient and a proper distribution of the light, making it necessary in most cases to take the patient to the operating rooms of the professional photographer. To this many patients object. Even when they consent, an hour's time is lost for each negative secured. My purpose this evening is to bring to your notice a simple method, devised by myself, whereby these inconveniences may be reduced to the minimum. The method referred to relates to the illumination of the subject, and not to any special construction of the photographic apparatus.

In my own office, if diffused sunlight be used on a bright day, an exposure of thirty to sixty seconds has often been necessary; but with the new method equally good pictures may be taken in the night or in a darkened room in a fraction of a second. This is brought about by the use of an artificial light produced by the instantaneous combustion of magnesium powder. This gives a momentary flash of light of surprising brilliance and amply sufficient for the purpose. Magnesium by itself will not ignite or burn as rapidly as when in contact with some more easily inflammable substance, and I find by experiment that ordinary photographer's pyroxylin, or gun-cotton, is admirably adapted to the purpose in view.

The magnesium and cotton are arranged for use in the following manner: A tuft of cotton, weighing about seven or eight grains, is spread out as a thin layer on any metallic surface, as a stone-lid or a tin plate. Ten or twelve grains of magnesium powder is next sprinkled evenly over the cotton. The patient is then brought into position and the focus obtained in the usual manner. If in the daytime, daylight may be used for focussing; but if at night or in a darkened room, a candle or lamp held near the patient will answer as well. The cotton-magnesium is now adjusted or held by the side of the camera and slightly in advance of the lens, care being taken not to bring it within the view angle of the lens. The plate holder is then affixed to the camera and the slide withdrawn. The room is then absolutely darkened, and the lens is uncapped. All being now ready, a lighted taper is applied to the cotton. This is followed by an instant flash, which takes the picture. The lens is capped, the slide of the plate-holder is returned to its place, and the plate is ready for development, either by the operator, if sufficiently skilled, or by a professional photographer, if desired.

Since my first publication of this instantaneous flash process, a large number

of substitutes for the cotton magnesium combination have appeared. These are all in powder form, and many of them contain chloride of potassium as an ingredient. Such mixtures are liable to premature and unexpected explosion, and are not to be recommended when absolute safety is a desideratum.[1] Care, therefore, should be taken to obtain a mixture entirely free from this objectionable substance. When a full-length figure is to be taken, in order to show the generalization of the eruption, I am in the habit of using the photogenic mixture in a pistol cartridge, and firing it from the weapon in the usual manner.

As regards the photographic apparatus available for office photography, I would strongly recommend for general use a rectilinear lens of eight to nine inches focus and a camera taking a 5 x 7 plate. The pictures that may be taken by the method here described are fully equal to those taken by daylight in a regular gallery, but in each case the excellence of the picture will depend in great measure on the quality of the lens and the skill displayed in the development of the plate. With the exception of development, all other manipulations may be learned in ten minutes from any practical photographer.

Dr. Fox expressed doubt that the photographs taken by Dr. Piffard with this artificial light were as good as he might take in sunlight and with a longer exposure.—*Journal of Cutaneous and Genito-Urinary Diseases*, February, 1888.

Experiments bearing on the Infliction of the Death Penalty by Electricity.[2]

Dr. George E. Fell, Professor of Physiology and Microscopy, Medical Department of Niagara University, Buffalo, N. Y., in a communication to the *Buffalo Medical Journal*, February, 1888, says:—In the month of July, 1887, there was conducted a series of experiments calculated to throw considerable light upon the value of electricity in killing dogs. The authorities of the city of Buffalo, N. Y., had determined to rid the city of the numerous dogs roaming the streets. To reduce their sufferings to a minimum, the agent of the Society for the Prevention of Cruelty to Animals recommended that electricity be employed. The dogs were quartered in one room; adjoining this was an entry which communicated with a third room, in which the electrical apparatus was located. The apparatus consisted of a common pine box, lined with zinc, and connected with one pole of the electric-light current for that portion of the city. When in use, the box was partially filled with water. Connected with the electric-light wire, representing the other pole, was an ordinary dog muzzle, supplied with an iron or copper bit, which was inserted into the mouth of the canine. The animal being placed in the box, the switch making the circuit was turned, causing the apparent instantaneous death of the animal. Only in exceptional cases were any movements noted after the current was made.

The results obtained by experiments conducted in this manner leaves the subject just where public opinion would place it, viz., that electricity will kill quickly. However, to ascertain, how quickly and thoroughly, requires further

[1] Since the above was written, an explosion, causing death, has resulted from one of these chloride of potash mixtures.

[2] Extract from a report of the Commission appointed by the Governor of New York to investigate and report on the most humane and practical method of carrying into effect the sentence of death in capital cases.

demonstration. The heart may rightfully be considered the centre of function, and, in the execution of criminals by the legalized hanging process, is always examined to ascertain when death ensues. In favorable cases, it is known that the heart may beat from six to ten minutes, and in some cases it has been known to beat from fifteen to thirty minutes before death. For the purpose of ascertaining the effect of the electric-light current on the action of the heart, the operation of opening the thorax of an animal under forced respiration was made. With this operation satisfactorily performed, the heart and lungs may be observed in action, viz., the heart beating and the lungs contracting and expanding as in life.

While the operation is not new to physiologists, still the effect upon the movements of the heart, by the passage of an electrical current which might be applied in the execution of criminals, I do not believe, has been frequently noted, or the operation often performed. That the ordinary electric-light current used in these experiments is sufficient to cause instantaneous death of a human being, is inferred from the many accidental deaths produced by such means. To witness the effect produced upon the heart in action, is a demonstration which cannot be questioned, and offers a positive answer to what may have been inferred, and has already amounted to, a foregone conclusion.

To those favoring electricity as the proper agent in the execution of criminals, a demonstration of this character serves to make them more positive, and less liable to be influenced by those whose investigations have been only superficial. Those opposed to it from the standpoint of uncertainty of action, it leaves without a foundation upon which to base their opinion. Prior to these experiments, I held the view that electricity might prove the best agent for executing criminals; after they were made, I enthusiastically supported it as the only agent which this age had any right to use for this purpose.

But to refer to the experiments: A fair-sized dog was placed under the influence of chloroform; an incision was made in the trachea, in which a tube, connecting with the foot-bellows, and supplied with suitable valve for respiratory purposes, was attached. Respirations were then kept up by these artificial means. The chest walls (thorax) were then removed, so that the heart and lungs were exposed to view; the dog was then placed in the zinc-lined box, the muzzle put on, and the forced respiration kept up until just before the current was made. The heart was beating as in life, but, the instant the circuit was made, it ceased its action, and became a mere mass of quivering flesh; not the least resemblance to a rhythmical movement was observed after the current was made. Many citizens present at the operation can testify to the above; in fact, the demonstration as to suddenness of stoppage of the heart exceeded all anticipation. The interference with all function was electrically instantaneous; death ensued from electric shock; the ordinary conditions of dying were absent. Nothing could be more sudden.

This first experiment, although eminently satisfactory in its results, was made under conditions the most unsatisfactory. The room was full of men hurrying to and fro, the dogs were being led to their fate, and no suitable place was provided to operate. This, and observations connected with another series of investigations, led to another demonstration, which was made under

more favorable conditions, at the electric-light works on Wilkeson street. This operation was conducted with greater care; instead of the muzzle with the bit attached, to make one pole of the circuit, a piece of wire line was placed in the mouth of the dog, and wound around the nose. The zinc box was used as before; chloroform narcosis was produced as before, and the thoracic walls removed. The heart was beating rhythmically; on making the circuit, it instantly ceased to beat. The current was quickly turned off, and forced respirations kept up, with the view of bringing the heart again into action; this was entirely unsuccessful. This result demonstrates that if the current is sufficiently powerful, attempts at resuscitation in the case of a criminal executed by electricity would fail.

In this second experiment, it was also noticed that an attempt to respire was made by the animal after the current was made. This, undoubtedly, indicated that the respiratory center in the brain (medulla) had not completely lost its susceptibility to impressions, and that, through the want of oxygen in the blood and centre noted, the effort to breathe was formulated. This has an important bearing upon the apparatus to be used in executions, inasmuch that it indicates that the poles should be arranged to pass the current through the center of function in the brain. Upon physiological grounds, also, this is indicated.

Even without this refinement of precision in the apparatus, as has been shown in this experiment, where the current was not passed directly through the functional brain centers, the sudden stoppage of the heart would indicate that electricity offers the most rapid agent in producing death that we have at our command. The mere estimates of the difference in the speed of the electric as compared with the nervous current, would further indicate that our senses could not interpret or apprehend the passage, or that death, produced by such means, would be absolutely painless to the culprit. From observations which are generally accepted, it may be stated that nervous force travels at a rate of from one to two hundred feet per second, while the electric current passes at a rate not less than two hundred thousand feet per second, or about one thousand times as rapidly.

From these observations the following deductions may be drawn: 1. That death produced by a sufficiently powerful electric currect, is the most rapid and humane of that produced by any agent at our command. 2. That resuscitation after the passage of such a current through the body and functional centers of the brain, is impossible. 3. That the apparatus to be used should be arranged to permit the current to pass through the centers of function and intelligence in the brain.

Treatment of Corns.

Dr. Lewis A. Sayre says that the first thing to do is to wear well-fitting shoes. With shoes sufficiently large to allow expansion of the foot in walking, you will have no corns; but if any exist, it is necessary to remove them.

Begin by paring the corn, shaving off the epidermis with a sharp instrument, but without provoking bleeding. Afterwards cauterize the surface with a crayon of nitrate of silver. In this way you cause the elimination of the kernel, which you could not do with a bistoury without bleeding. Now smear the corn

with diachylon; wrap a narrow bandage around, of sufficient thickness to prevent pressure.

If it be a soft corn, the best treatment is cauterization with nitric acid or nitrate of silver. After having removed, with a penknife or scissors, the superficial hard part of the corn, dry the surface and apply caustic. The first cauterizations are generally painful, but the results are excellent.

After the cauterization is finished, insert between the toes tampons of cotton in a way so as to permit the circulation of air; at the expiration of several days, remove with forceps the eschar made by the caustic, and repeat the cauterization. The second cauterization is ordinarily painless, and rarely has to be repeated.—*Buffalo Medical and Surgical Journal*, January, 1888.

Case of Cerebral Abscess; Operation; Recovery.

Dr. L. D. Wilson, of Wheeling, W. Va., reports the following case as a contribution to brain surgery:—It is proper to state that the history, up to a little more than a week prior to the operation, was obtained from the patient's mother, who until that time had resided in a distant city, and it is somewhat unsatisfactory on certain points, owing to the fact that a severe domestic affliction overtook her during the progress of the case, which distracted her attention in another direction for a considerable time. It is reasonably certain, however, that the account here given is correct in every material particular.

Case.—J. J., a well developed boy, eleven and a half years old, while snowballing, in the latter part of January, 1887, fell, striking his head on a railroad coupling-pin. He was for a short time unconcious, but had recovered conciousness when brought home about two hours afterward. It was found that he had sustained a scalp-wound about a third of an inch in length, penetrating to the bone, its situation being on the right side of the head, two and a quarter inches above the outer orbital angle, one and three-quarter inches to the right of the median line, and one and three-quarter inches anterior to the coronal suture. It had bled freely, to restrain which cold water and snow had been liberally applied before he was taken home. No signs of injury of the skull were observed. Recovery seemed to take place promptly, and the boy continued to go to school.

About ten days afterward his appetite began to fail, and on the fifteenth day after the accident, he complained of severe pain in the head and shivering. This was followed during the day by vomiting. For a considerable time after this, the stomach continued to be extremely irritable, so much so that, to use the words of his mother, "nothing would lie on it for five or six weeks." Then the vomiting rather suddenly ceased and did not return. In a week after the vomiting began, the pulse-rate had fallen to 40, and a week later it rose again to 70—80, at which it remained. The pain in the head, which during all this time had been severe and continuous, now began to be intermittent, but at the same time very excruciating. It was always complained of as being especially severe in the *teeth*, and a part of the time there was also pain in the *right* hip. About four weeks after pain and vomiting began, convulsions set in, at first five or six a day, gradually diminishing in number to two or three a week, until about July 1, when they began again to be more frequent and severe. The convulsions were early followed by paralysis of the *right* arm and loss of power in *both* legs, but

these symptoms disappeared about the 1st of June, up to which time the boy had been confined to bed. After this date he was able to walk about, but would fall suddenly when convulsive attacks came on, and his gait was awkward at all times. As soon as the vomiting ceased he began to eat voraciously, and a great increase in flesh followed; the abdomen became enlarged and the face lost expression.

About the 1st of July, he was brought to this city and placed under the care of Dr. George Baird. At this time, in addition to the symptoms first detailed, he presented the following: The face was slightly drawn to the *left; right* eye totally blind, and very great impairment of vision in the *left;* both pupils dilated; a slight convergent squint; noises and impaired hearing in right ear; complete loss of sense of smell; tongue partially paralyzed, but sense of taste not affected; urine scanty; sleep disturbed; speech slow; some mental dulness, but no impairment of memory. The symptoms being clearly referable to the preceeding injury, it was speedily determined that an operation offered the best chance of relief, and accordingly, on July 9, at the instance of Dr. Baird, and with the assistance of himself and his son Dr. R. M. Baird, the skull was trephined at the site of the original injury. The cicatrix was found to be somewhat depressed and very tender on pressure. On reflecting the soft parts, the external table presented no evidences of injury except a small perforation sufficient to admit a small probe, which extended through the entire thickness of the bone. On removing the disk of bone no change in its internal surface was observed except the small perforation mentioned. The dura mater, which bulged moderately into the opening, was then incised with a narrow bistoury, and immediately a jet of pus spurted out a distance of three or four feet, and so continued for several seconds until the opening was enlarged with scissors. It then flowed out freely, and at a moderate estimate the quantity discharged was fully three ounces. When the flow ceased, a drainage tube was inserted and the scalp-flap replaced and sutured. The wound discharged freely for several days, when the tube was removed and wound healed promptly, except at one point where a small fistulous opening remained for a time, occasionally discharging small quantities of serous fluid. It permanently closed in about a month.

As a result of the operation, the pain and convulsions at once ceased, the boy began to sleep well, the appetite became natural, the super-abundant flesh gradually disappeared, the natural expression of countenance returned, vision in the left eye improved, and returned to the right eye to a limited degree, hearing in the affected ear became much better, there has been a slight return of the sense of smell, and the functions of all the paralyzed muscles have been restored. The boy seems to have entirely recovered his usual health. His pupils are still moderately dilated and there remains also a slight squint.

Dr. W. S. Hutchins, of Wheeling, W. Va., made the following report of an examination of the eyes:—"*October 15, 1887.* Pupils considerably enlarged. Examination with test-types shows R. $\frac{1}{200}+2.25$ D. $=\frac{3}{200}$. L. $\frac{5}{200}+2.25=\frac{8}{200}$. Dilated pupils with duboisia, which did not alter above result with test-types. Ophthalmoscopic appearance as follows: Right eye: cornea, iris, and media normal; papilla white, much swollen; central vessels appear to emerge from apex of a cone, the base of which spreads far beyond and obscures the disk entirely.

Vessels diminished in size and tortuous, can be clearly seen over swollen papilla, but much less so over retina, which is infiltrated and has decided lack of transparency. There are dense opacities seen along the line of ascending vessels, in upper nasal quadrant—glistening patches with striated edges. In upper outer quadrant, quite a collection of these brilliant spots or opacities near the equator, In the lower hemisphere, these spots are scattered here and there over the retina. between the vessels mostly, but occasionally being over and hiding a portion of the vessel from view. Left eye; cornea, iris, and media normal; papilla very nearly normal; outline of disk clear; vessels, however, are smaller and tortuous; retina infiltrated, but less so than that of right eye; few white shining patches scattered over surface of retina with an occasional spot along course of vessel; one small collection lies near the equator on the nasal side of the disk."

The author concludes his paper by saying, "I have had opportunity during the past three or four years to examine two cases of cerebral abscess, *post-mortem*, both the result of external violence. Both of these were associated with slight fracture, one involving the external table only, the other including both, with a small, depressed, pointed fragment pressing upon the dura mater. In the first of these, a small abscess containing about a drachm of pus was found in the brain beneath the seat of fracture, and three others of similar size, and not communicating with the first, or with each other, were fonnd at varying depths in the same hemisphere. Operative measures here would no doubt have been disappointing, as neither the presence nor site of other abscesses than the one primarily sought for would likely have been suspected in time to permit successful interference. In the latter case, a single large abscess was found in the cerebrum beneath the external wound, and in addition there was a considerable extravasation of pus between the brain and dura mater, causing marked flattening of the convolutions. An early operation in this case would have afforded as fair a chance of success as in the one here reported."—*Medical News*, December 10, 1887.

The Treatment of Ulcers by the Transplantation of Large Pieces of Skin, after Thiersch's Method.

Dr. James Bell, Surgeon to the Montreal General Hospital, in a paper on this subject in the *Canada Medical and Surgical Journal*, January, 1888, says that while skin-grafting by Reverdin's method, which consists in the placing of small pieces of skin at intervals on a base of healthy granulations, is known to and practised by surgeons everywhere, the treatment of ulcers by the removal of the diseased tissues and the transplantation of large pieces of skin—a process which is known in Germany as Thiersch's method of skin transplantation—is but little known to English and American surgeons, and but rarely practised by them. The essential principles of this method are:

(1) That the part to be treated be prepared by the removal of all unhealthy granulations and diseased tissues generally, and be rendered thoroughly aseptic. (2) That the skin to be transferred to the bed thus prepared be thoroughly cleansed, rendered aseptic, and carefully removed and applied with its under surface closely in contact with the base of the wound in such a manner as to cover it completely. (3) That the wound be kept aseptic throughout, and disturbed as little as possible.

In preparing the ulcer it will often be necessary to dissect away the skin on which it is situated throughout its whole thickness. Sometimes, even, especially on the shin—one of the commonest sites for old ulcers—it will be necessary to remove the periosteum and perhaps chisel away the outer surface of the bone over a considerable area. This, of course, involves a good deal of bleeding, whether an Esmarch's bandage has been used or not; and it may be necessary to apply a compress firmly over the wound for an hour or two before transplanting the skin. In many cases, however, it will be sufficient to scrape away the granulation bed with a Volkmann's spoon, in which case there is usually no delay from hemorrhage. The skin to be transplanted may be taken from any convenient part of the patient's body, or from another person altogether. It is removed in strips with a sharp knife, or, preferably, a broad-bladed razor. The skin is to be taken to a depth sufficient to secure as nearly as possible the whole thickness of the epidermic layer, the rete Malpighii being the most desirable part. It does not matter if the papillary layer of the true skin is partially removed, but the corium should not be included. Prof. Thiersch, of Leipzig, after whom this operation is named, demonstrated in 1875, on a leg which was about to be amputated, that union occurred between the skin and subjoined tissues without any intervening connecting layer, and that blood-vessels, or at least blood-spaces, which soon developed into blood-vessels, extended from the wound into the skin in as short a space of time as eighteen hours. These facts were demonstrated by injecting the leg after amputation. It was in the same year also that Prof. Thiersch recommended the cutting away of the granulations before transplanting the skin. Surgical methods have, however, undergone so many changes since 1875 that the author deems it best to describe the details of the operation as he saw it generally performed in Germany during the past summer, notably in Schede's clinic in Hamburg, and as he has performed it himself in the cases which he is about to describe:

Case I.—William J., a healthy-looking man, but somewhat pale, an old soldier and ex-lighthouse keeper by occupation, had been exactly two months in hospital under regular treatment for an ulcer extending across the lower third of the right leg. This ulcer had originated thirteen years prior to his admission to the hospital, from the stab of a game-cock's spur. It had gradually extended and never healed in the least degree in any part, and at the time of operation covered an area of about four by five inches, its prominent features being hard, raised edges and indolent, painless granulations. During the thirteen years of its existence he had been treated at different times by a great many surgeons, but without any appreciable benefit. The operation was performed on August 7 last, in the following manner: The patient was anæsthetized, the leg thoroughly washed with soap and water, and irrigated with a solution of corrosive sublimate of the strength of one part in two thousand. Thinking that probably from its long standing the periosteum underneath the ulcer would be diseased, the author dissected out the whole space covered by the sore, cutting through the healthy skin just beyond the margin of the granulation surface. Finding the tissues quite healthy, however, beneath this flap of skin, he merely twisted a few small vessels and applied a temporary gauze-dressing very firmly and proceeded to shave, wash and irrigate the anterior surface of the thigh. Then removing the

temporary dressing, he shaved off strips of skin with a razor and carefully covered the wound with them. (A strip of skin, from three-quarters of an inch to an inch and a half in width and as long as you want it, can easily be removed with a good razor.) These strips of skin were placed transversely across the wound, and across them again were placed strips of silk-isinglass plaster about half an inch wide and at intervals of about half an inch apart, the plaster being wetted in the sublimate solution. The whole was then dressed with a sublimated gauze dressing. The dressing was changed on the fifth and again on the thirteenth day, and finally removed on the thirtieth day after operation, when the wound was perfectly healed. A gauze pad was then applied over the lower third of the leg, to protect the newly-formed skin, and the patient was kept in hospital for about two weeks longer as a precautionary measure and then discharged. The author adds that it is not necessary to wait until the wound is absolutely dry and bleeding completely arrested before transplanting the skin, but as soon as it has been arrested to such a degree that the strips of skin can be applied without danger of their being washed away by the blood the process may be completed.

CASE II.—R. McC., aged 50, an old soldier and inveterate drunkard, had a chronic indolent ulcer of four and a half years standing on the middle third and anterior surface of his leg, covering an area of two and a half by three inches. He had been under treatment in hospital for seven weeks, but his ulcer had made no progress towards healing. On August 22 Dr. Bell dissected out this ulcer and transplanted skin from the thigh, as in the last case. The dressing in this case was never changed, and was finally removed on September 15, twenty-four days after operation, when the wound was found to be perfectly healed. A light gauze pad was applied over the new skin for protection and the patient discharged.

Three more cases are then reported by the author, with equally happy results, and two more are referred to. He adds that he has given full reports up to date, and that he has not had even a partial failure. He concludes his paper with the following remarks:

These cases have no special interest in themselves, but they demonstrate the ease, certainty and rapidity with which skin may be reproduced by this method on ulcers which cannot otherwise be induced to heal. As to its applicability, there is no class or variety of non-specific ulcer which cannot be immediately prepared for the reception of flaps of skin, nor does the size of the ulcer increase the difficulty or delay the healing. In very large ulcers, skin may be taken from a limb about to be amputated or from one or more volunteers independent of the patient. The wounds made by the removal of the skin flaps being very superficial heal rapidly, and are not followed by contraction or other ill effects of cicatrization. Every surgeon will recall cases of extensive ulceration following mechanical or chemical injury to the skin, burns, frostbites or cellulitis, or cases in which it has been necessary to remove large areas of skin for malignant growths upon or closely beneath it (as in carcinoma of the mamma for example), and in which, after months or years, a poor contracted cicatrix was the best obtainable result, while oftener, perhaps, the ulceration remained, or developing into an epithelial cancer, proved rapidly fatal. Again, how many men and women past middle life go for years and years with chronic, irritable or

indolent ulcers, especially on the lower extremities, occasionally for a period inactive, or even tending to heal a little, but, on the whole, gradually increasing in superficial area and depth until amputation is called for in many cases? In all these cases we have, he believes, in this method of skin transplantation a line of treatment absolutely safe and as certain and satisfactory as we have for any other class of surgical diseases. Its advantages over the older method of skin grafting are obvious. It is applicable to all kinds of ulcers without preparatory treatment. It covers the whole area with skin instead of isolated points, which merely act as starting points for epithelial growth. The end is obtained in an infinitely shorter space of time and with much less trouble; and finally the result is a sound skin, not a tense tissue-paper covering which will give way again on the slightest provocation.

Resection of Intestine; Recovery.

A women, aged 33 years, was received into Nothnagel's wards in January, 1887, with symptoms of intestinal obstruction. Increase in the severity of the symptoms (severe pain, meteorism, ileus) led to her removal to Billroth's wards in February, when Dr. Salzer, Jr., performed the operation for artificial anus, opening the caecum. All the dangerous symptoms ceased, and perfect healing of the wound took place. In May the patient could pass about half her fæces per rectum, and at her request Billroth closed the artificial anus. In three weeks the wound had healed, and the woman had regular passages for three weeks more, when the old symptoms reappeared. In July, Dr. von Hacker performed laparotomy. A small tumor was found in the sigmoid flexure, and a part of that, with a wedge-shaped section of mesentery containing enlarged gland was removed Half the circumference of the intestinal wound was united with Wölfler's sutures; internal and external continuous sutures of the mucous membrane, an outer intestinal suture, and several Lembert's sutures were also applied. The lumen was at once found restored, and healing of the wound progressed rapidly. Four months after the last operation the woman was quite well. The tumor was a cylinder-celled epithelioma. The lumen of the intestine was so reduced that it scarcely afforded passage of a match-stick through it.

Billroth explained the changes in the course of the disease by assuming that the tumor broke down and was expelled piece-meal. Contraction of the connective tissue in the base followed, similar to that seen in carcinoma of the œsophagus.—*Deutsche med. Wochenschrift*, November 24, 1887.

Tracheotomy in Diphtheria.

Edmund Owen, F. R. C. S., Surgeon to the Hospital for, Sick Children, Great Ormond Street, London, in a lecture delivered at St. Mary's Hospital, London, November 4, 1887, says: When seeing for the first time a child with extreme dyspnœa, it is often impossible to say whether the laryngeal obstruction is due to a simple, acute catarrhal inflammation, or to diphtheria. The determination of the matter is, however, of secondary importance; the admission of air into the lungs is the one of urgency. In every case it is expedient to isolate the child at once—to get him, if practicable, into a room at the top of the house, destitute of heavy furniture, carpets, and hangings. Not infrequently after

operating on a case of supposed simple laryngitis the fact of its being of diphtheritic origin is disclosed, either by the observation of grey patches upon the fauces, of albumin in the urine, or worse still, by unmistakeable diphtheria attacking, and perhaps carrying off, other members of the same household.

As regards the *when to operate*:—When the air is entering the lungs in such small volume that the child is evidently suffering from the want of it; when expiration is prolonged and noisy as well as inspiration, for this shows serious mechanical obstruction of the glottis; when the child is restless, in terror, or unable to sleep, tossing about the bed, or putting his fingers into his mouth as if to rid himself of something which is blocking the air-way; when the face is becoming dusky; and lastly, "Whenever in doubt, operate."

How to operate.—Certainly not by a "tracheotome" (two specimens of which were exhibited). It is one thing to introduce such an instrument into the windpipe of an adult subject in the mortuary, and quite another to effect that result in a living child. For in attempting it the tracheotome would very likely slip from off the trachea, and wound the vertebral column; or, compressing the trachea, would pass through the posterior as well as the anterior wall, and perhaps enter the œsophagus.

(The instruments used by O'Dwyer for intubation of the larynx as a substitute for tracheotomy were then shown, and their working explained. In theory at least there were many objections to the use of these tubes, they were difficult to introduce until one is accustomed to them, and difficult to remove, even when one is accustomed to them; and, though in certain cases they may prove an efficient substitute for tracheotomy, still, in laryngeal diphtheria in childhood, they are not likely to supplant that operation. However, one must for the present keep an open mind upon the matter whilst awaiting the result of experience.)

Where to operate.—As high in the trachea as possible, for the lower that the incision is made down the neck the more deeply is the trachea placed, and the greater is the danger of wounding irregular arteries, and inferior thyroid veins. Wounded veins are, as a rule, easily managed by forci-pressure forceps, but should any larger vessel be cut than those usually found in the middle line, the bleeding might be troublesome. It is best to go quietly through the operation, securing the bleeding vessels as they appear. The less that the scalpel is used, and the more that the tissues which lie over the windpipe are torn through with forceps and director the less is the trouble with bleeding. The scalpel should be used only for incising the skin and the trachea, everything between these structures being torn through with a pair of dissecting forceps, or else quietly displaced. When some of the highest rings of the trachea are bared and visible, or are felt quite naked by the tip of the finger, the trachea may be steadied by a sharp hook and opened from below upwards, by a kind of stab with the scalpel, the edge of the blade being directed upwards. Then comes the rush of air, blood, and mucus through the wound; the tube is introduced, and the child breathes easily through it. As a rule the surgeon tries to open the trachea between the cricoid cartilage and the isthmus of the thyroid body, but he will do well not to pay too much respect to the integrity of either of these structures. By all means should he divide the cricoid ring if the neck be short, and the available part of the trachea small. Probably the best operation is that in which the cricoid cartilage and the

first ring or two of the trachea are divided—laryngo-tracheotomy as it is called. If the student will only bear this in mind he will be sure to keep his line of operation high, and will consequently simplify the procedure to the utmost. Many an operator has got into difficulties by reason of his attempting to open the trachea low down. The skin incision should be begun over the lower border of the thyroid cartilage, and should be continued down, in the exact middle line, for about 1½ inches. A small, flat pillow, or a small blanket folded across and across, should be laid under the shoulders, and the head should hang well back over the top of the pillow or folded blanket, so as to drag the trachea well out of the chest; and, without any question, before proceeding to operate, chloroform should be administered. Of course if the child be moribund, or apparantly dead, as the surgeon is about to open the trachea, it will be not only needless, but prejudicial to the chance of success, to administer an anæsthetic. Otherwise, the only reason for his not administering it is that the surgeon has none at hand, and has not time to procure any. Indeed, the urgency may possibly be so great that the surgeon may be compelled, single-handed, to open the trachea with a pen-knife, and extemporize a tube with a piece of a quill pen, or with a bent hairpin.

If, after the introduction of the tube, the child cease to breathe, artificial respiration must be resorted to; by this means a child who is to all appearances dead may happily be brought round.

If an abstract may be drawn from the foregoing condensed remarks, and then rendered in a personal form, it would run thus:—Acute laryngeal obstruction is usually diphtheritic. Perform tracheotomy as soon as the dyspnœa is becoming serious; you cannot operate too early. Keep your incision high and, of course, in the exact middle line, using the scalpel only for skin and cartilage. Take your time; and do not attempt to open the trachea until you have thoroughly denuded the topmost rings.—*Medical Press and Circular*, Dec. 2, 1887.

The Structure of the Os Calcis, and Two Cases in Which Both Ossa Calcis were Broken at the Same Time.

Dr. J. S. Wight, Professor of Operative and Clinical Surgery at the Long Island College Hospital, in a paper published in the *Brooklyn Medical Journal*, January, 1888, says:

The size and structure of the os calcis are worthy of attention, as they relate to the subject of fractures of this bone. I have before me a normal specimen of the right os calcis. The bone is about three inches in length, it is about one inch and five-eighths in depth, and it is about one inch and two-eighths in width. The heel is nearly one inch and one-half in length. The other half of the bone in front is in articular relation with the astragalus, and slopes quite abruptly downward and forward to the interosseous groove, where the vertical diameter of the bone is somewhat less than an inch. From that point the greater process of the os calcis expands to some extent till it reaches the surface that articulates with the cuboid bone. At the place where we find the interosseous grove, which is nearly an inch from the anterior extremity of the os calcis, there is a constriction of the bony structure that may be called a *neck*. The under surface of the os calcis is slightly arched. The internal surface of this bone has a considerable

arch that is augmented by the sustentaculum tali. The neck of the os calcis has a practical relation to the osseous structure.

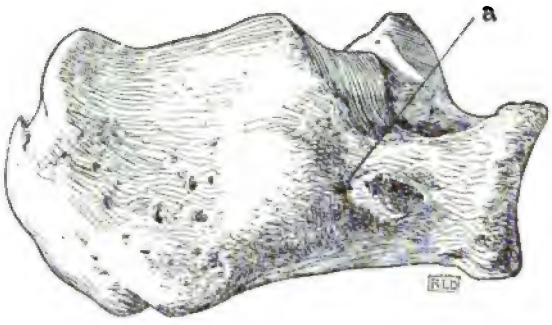

FIG. 1.—The os calcis. *a*. Neck of os calcis.

Now, as to the structure of the calcis: saw vertically and longitudinally in a curved direction through the center of the bone. The structure of the os calcis will at once appear. There is a firm layer of compact bone at the articular surface. From the compact bone of the interosseous groove, as a center, the bony plates radiate forward to the cuboid articulation, as well as downward and backward to the bottom of the os calcis. And from the posterior part of the astragaloid articulation other bony plates radiate downward and backward. The upper plates run parallel with the upper surface of the heel, while plates next in order extend to the posterior extremity of the os calcis. And at the lower part of the neck of the os calcis, nearly under the interosseous groove, for a distance of about one-half inch, the layers of cancellous bone approach the conditions of compact tissue. From this territory, that is, from the under side of the neck, the bony plates radiate both ways—forward to the lower half of the cuboid articulation, and backward to a little more than the lower half of the posterior extremity of the os calcis.

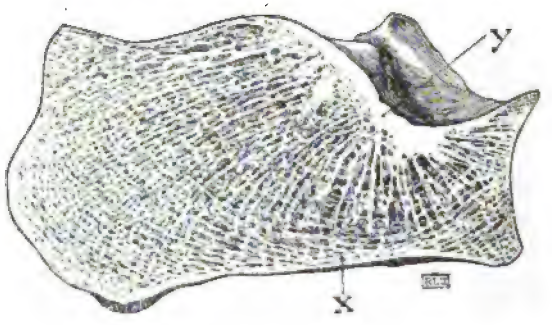

FIG. 2.—Structure of the os calcis. *X*. Compact bone at lower part of neck, showing radiations forwards and backwards. *Y*. Compact bone of articular surface.

When, therefore, we examine the size and structure of the os calcis in the manner above indicated, we shall see that the weakest part of the bone appears to be located in its neck. And there are two circumstances of a dynamic nature related to this conclusion: the astragalus rests directly and indirectly on the

neck of the os calcis, which must therefore sustain more or less of the superincumbent weight of the body. And the calf-muscles make a lever of the os calcis, and the power and weight act on this lever of the second order in such a manner as to put the greatest strain on that part which we have denominated the neck. Hence, given the size, structure, as well as the conformation, of the os calcis, and also given the dynamic conditions we have pointed out, we may conclude that this bone may, in case of certain accidents, be broken in the vicinity of its neck. The following cases are related to illustrate the points above made, as well as the conclusions reached.

Case I.—Mr. A., a carpenter, about fifty years of age, fell September 14, 1886, some thirteen feet, and came down standing. He said he went into a heap when he struck. He could not get up, and it was necessary to carry him home on a stretcher. I saw him about two hours after the accident. Both feet were injured, but there was no wound on either. On examination of the right foot, I found mobility in the continuity of the os calcis at the place where it is crossed by the peroneal tendon. The anterior part of the greater process of this bone was more prominent than normal, and could be pressed inward. When the pressure was removed, the fragment would be displaced outward; and as the fragment moved to-and-fro, crepitus was distinctly felt. Evidently there was a fracture of the neck of the right os calcis. The injury to the left foot was more serious. There was considerable swelling in the vicinity of the malleoli, which had been separated to some extent, indicating impaction of the cancellous bone of the lower end of the tibia. There was mobility in the continuity of the neck of the left os calcis. Crepitus could be felt by moving the bony fragments from side to side. The anterior fragment was displaced somewhat outward, and it could be pressed into place and held there by the fingers. The displacement would occur again when the fingers were removed from the fragment. In addition to this, the neck of the left astragalus was broken; for there was not only mobility in the continuity of the neck of this bone, but there was crepitus, that was distinctly felt when the head of the astragalus was pushed from side to side.

On the right side, the anterior fragment of the os calcis seemed to be displaced somewhat downward as well as outward. The arch of the foot was slightly obliterated, but the heel was kept mostly in place by means of the plantar fascia. I applied a roller bandage around the foot and ankle; it not only kept the fragments of the greater process well reduced, but it also tended to bring down the heel by pressing on the plantar fascia, which antagonized the muscles of the calf. On the left side the displacements were more marked. There was not much of the arch of the foot left, and the end of the heel turned up slightly. I applied a long inside splint with a foot-piece that would hold the foot and leg in normal relation. Both parts of this splint were well padded. The foot-piece was padded so as to press the plantar fascia well upward, in order that it might pull down the end of the heel. This splint was kept on by means of a roller bandage. The reduction of the fragments was such as to leave only slight deformity. At the end of seven weeks this foot was in the following condition: the end of the heel pointed nearly in a right line backward. The flexion and extension of the foot nearly normal, caused slight pain. The adduction and abduction of the foot, which occur at the subastragaloid joint, had an

impairment of about one half. The space between the arch of the foot and the plantar facia was considerably filled up with bony structure. While there was some enlargement left, the extravasated blood had not completely disappeared. In most respects the result was very satisfactory.

Case II.—A sailor, about twenty-nine years of age, on October 13, 1886, fell a distance of about twenty-five feet: he came down standing, and went into a heap. He was at once brought to the College Hospital, where I saw him about three hours after the accident. There was a serious compound injury of the left ankle. The plantar arch was mostly obliterated. The soft parts just above the ankle were much swollen. The left os calcis, as could easily be made out, was broken through the neck: the two fragments could be moved readily in any direction, and at the same time crepitus could be felt. The new point of motion in the continuity of the os calcis was in its neck, while the posterior half of the bone was without fracture. The fine pieces of bone could be felt by the finger introduced into the wound; and the head of the astragalus had been broken off and was partly projecting from the opening on the inside of the foot, while the body of the astragalus was very much comminuted. I amputated the leg just above the junction of the lower and middle thirds. On the right side there was a movable piece of bone, on the outside of the foot at the seat of the greater process of the os calcis. Crepitus could be felt when this fragment was moved. The arch of the foot appeared to be obliterated to some extent. The end of the heel turned up slightly, and the plantar fascia was somewhat tense. The neck of the os calcis had been broken. The treatment of this patient's right foot was similar to that of the first patient's right foot. The foot and leg were put in a normal relation, and some compression was made on the plantar fascia for the purpose of keeping down the heel. The amputation gave primary union; and after some six or seven weeks, the right foot had been repaired so as to leave but very little disability.

These two cases of simultaneous fracture of both ossa calcis appear to confirm the theoretical conclusion that the neck of this bone is the weakest part, and that it is favorably located for the occurrence of a fracture. One circumstance, however, that we have not noted, may contribute to this result; that is, the astragalus may to some extent act as a wedge, blunt to be sure, and yet of sufficient penetrating power, especially under the falling weight of the body, to co-operate to some extent in the production of a fracture of the neck of the os calcis. The larger articular surface of the under side of the astragalus is no doubt, from time to time, driven with great force into the concavity on the upper side of the os calcis, where the neck and the body of this bone are continuous. Combine this force with the resistance made on the abutments of the arch of the foot, and add to the resultant the contractile power of the sural muscles, and we have causes that are competent to produce the fractures under consideration.

The indications are that the os calcis is broken more frequently at the neck than in the heel, and that fractures of this bone are not uncommon. The diagnosis of the fractures in the cases above related was quite certain; yet it can be seen that the detection of this fracture at times must be very difficult. In some cases the diagnosis must be impossible, especially when there is impaction of the cancellous bone, and when the fracture is incomplete. When mobility in

the continuity of the bone and crepitus cannot be found, and when the displacements of fragments are concealed by the swelling of the soft parts, the diagnosis can only be a matter of probability, depending on the severity of the accident and the extent of the disability.

The treatment of a case of fracture, or of suspected fracture of the os calcis, may be conducted on one of two plans: 1: The foot may be flexed on the leg, so as to raise the heel and relax the sural muscles. A splint of felt, plaster of Paris, or other suitable material, may be moulded to the anterior surface of the leg and the back of the foot, and securely kept on by means of a roller bandage. This apparatus will control the action of the sural muscles and inhibit their pull on the end of the heel; and the bandage will press on the plantar fascia, that will thus tend to hold the posterior end of the larger fragment downward and forward. In fine, it may be claimed that the flexion of the foot will to some extent diminish the upward displacement of the heel. 2. In most instances of fracture of the neck of the os calcis, I am inclined to recommend the plan of treatment employed in the cases above reported. A firm board-splint, having a foot-piece at an obtuse angle, after being well padded, may be applied to the inside of the leg and foot. It inhibits the sural muscles, and puts the foot in a normal relation to the leg. It maintains the relation of the fragments, and does not interfere with the comfort of the patient, and the foot-piece supports the arch of the foot in a desirable manner. So far as I can judge at present, it is better to have a foot-piece under than on the back of the foot.

There are two points of special interest connected with the kind of fracture we are considering. The fracture is near a joint, and is in cancellous bone. The process of repair will be slow, there may be considerable softening of the damaged bone, and an abundance of new substance may be formed. Also the fracture involves the subastragaloid joint, and inflammation of this joint will especially tend to produce disability. The anchylosis of the calcaneo-cuboid joint that may supervene will also to some extent complicate the result. In any case, disability of the joints of the tarsus will be less serious than impairment of the ankle-joint. When the patient begins to assume the upright position, the feet will swell for some time. Close-fitting socks and well applied bandages will best counteract this tendency. The pressure due to walking will make the bottoms of the feet sensitive and painful; but these conditions will pass away as the parts recover their tone. The disorder of the neuro-muscular apparatus of the ankle-joint will interfere with the patient's locomotion till the process of repair has been somewhat thoroughly completed. The case may need passive motion for some weeks, and this may be supplemented by the good effects of voluntary motion.

A Case of Complete Adhesion of the Soft Palate to the Pharynx, with an Operation for its Cure.

Dr. E. Harrison Griffin, attending surgeon of Throat and Nose Department of Bellevue Hospital Out-Door Poor, New York, reports the following case to the *Medical Record*, Jan. 14, 1888: The patient was forty-four years old, a seaman, a native of France, and applied to Dr. Griffin on November 29, 1883, complaining of shortness of breath. He wanted to know if anything could be

done to restore his speech. He was able to utter a sound, but he could not turn this sound into words. He had contracted syphilis twenty years previous; he was married, and his wife had miscarried three times. One child was born living, and is now twelve years of age, and is apparently in fair health. This communication was made on paper, as the patient was unable to talk.

His nose was entirely eaten away down to the nasal bones, so that all that remained was a small opening in the face. The nasal fossa would fill up with large green crusts, which he dislodged with a hair-pin every morning and evening. The stench from these crusts was exceedingly offensive. The patient's mouth was so closed up by syphilitic adhesions that the author could pass in only his two fingers with great difficulty, by stretching the mouth to its utmost capacity.

A laryngoscopic view, or a complete view of the throat at this stage was impossible. His first operation was to enlarge the mouth, which was done by means of a knife. Afterward little wooden stretchers, or gags, were inserted, to prevent the wounded surfaces from growing together again. After this was accomplished he found that the uvula and the lower part of the soft palate were entirely destroyed, and the remaining part of the palate was firmly adherent to the pharynx, so that the upper pharynx was completely separated from the lower pharynx. Complete occlusion of the two pharynges, he says, is extremely rare. Dr. Griffin states that he has met with it in only three cases. It is by no means rare in tertiary syphilis of the throat to find a partial adhesion of the parts; but it is extremely rare to find a complete adhesion. Often a small opening can be discovered, sometimes only large enough to admit a small probe, but still large enough to admit a small current of air.

In this case he covered the lower pharynx with iodoform and filled the nasal fossa with water. The iodoform was not moistened. He then determined to liberate the palate from the pharynx, so that he could give his patient nasal breathing, and also give the nasal cavity an outlet into the throat. To do this he first passed a silver probe down through the nose to the pharynx, and with a tenotomy knife cut where the palate bellied. After he had thoroughly separated the palate from its attachment, with no little difficulty, the parts were sprayed with a solution of tannin. No anæsthetic of any kind was used. He then began to pass the largest sound he could obtain through the opening into the upper pharynx, and subsequently had a sound made after the following description: The body of the instrument was about two inches in length and was blunt-pointed at the end, and gradually widened as it reached the base; it was somewhat similar to a triangle in shape. The base was an inch and a half in width. To the broad end of the instrument was attached a long handle, so that it could be manipulated in the throat. He found that with this instrument he could keep the opening of the required size, and prevent it from closing.

Had the wound not been treated with sounds after cutting, the opening would have filled up in a very short time. This is a peculiar characteristic of syphilitic tissue, where we seek to enlarge an opening, whether it be in the pharynx or nasal fossa. In a case of nasal stenosis, now under observation, he has seen the parts close completely after opening the nasal canal three times, every time giving the patient complete breathing space, taking out at each

operation a large piece of cartilage at the point of union. In a short time the parts were firmly adherent again. The parts in this operation healed nicely, and within four days absolutely no pain was felt from the passage of the instrument. An examination of the larynx showed complete paralysis of the abductors of the vocal cords, and the whole mucous membrane lining the larynx was in a state of hyperæmia; this accounted for his loss of voice.

At the beginning of his operations he had placed his patient under iodide of potassium, but was compelled to give him one hundred grains, three times a day, before he could get any effect. He does not consider this an unusually large dose in cases of tertiary syphilis of the throat or nose, and has often given larger doses and maintained them during a longer time. This was given in water; his stomach stood it nicely, and this amount of iodide was kept up for two weeks, when the amount was gradually reduced. Within a month and a half from the time of the first operation on the mouth, the patient had entirely regained his voice, and had increased something like fifteen pounds in weight. His voice was then quite clear and strong.

The Treatment of Epithelioma with mild Caustics.

In the *Journal of Cutaneous and Genito-Urinary Diseases*, January, 1888, Dr. Daniel Lewis has a communication on the treatment of epithelioma with mild caustics, from which we make the following abstract: Statistics from the London Cancer Hospital from 1851 to 1872 show that of 8579 cases of cancer, 2010, or more than twenty-five per cent., were surface epitheliomata. Next to scirrhus tumors then come these cases, which, whether properly or not, have been considered within the field of dermatology. "Although what I shall claim to be the effect of mild caustic application applies with greater force to the more malignant varieties, such as epithelioma of the tongue, rectum and cervix uteri, it is to those directly affecting the skin to which attention is directed in this paper."

By the term mild cauterization the author says he means all caustic applications of whatever kind which aim at a *gradual* destruction of the diseased tissue. He then gives the following cases as illustrating his meaning: A young man of thirty years consulted a physician about one year ago for a "cracked" lip which had troubled him two or three months. During the next six months eighty applications were made to the lip, so the patient says, of a caustic answering to the description of nitrate of silver. The result is the entire lower lip cancerous, an enormous tumor on the left side of the face and inferior maxillary region, which has ulcerated in several places, and the "cancer cachexia" of the older writers indicates an early fatal termination. This very unusual glandular infection can only be accounted for by the fact that the repeated applications acted in the same manner as the local irritation which is so often the exciting cause of the primary disease.

An old lady, who was under his care while he was connected with Dr. Bulkley's service at the Skin and Cancer Hospital, suffered from an epithelioma of the ala nasi on the right side, and a small one on the cheek of the opposite side. The latter was thoroughly removed by curetting, after which a strong pyrogallic acid ointment (℥ iv–℥ i) was applied for three days and the ulcer healed without delay

and never recurred. The *curetting* removed *all* the disease, and the ointment, acting as a stimulant to the surrounding blood supply, actually hastened the granulation process. The larger epithelioma on the nose was curetted, the ointment applied and the disease sprung up anew. The strength of the ointment was increased until the pure acid was several times applied, and finally, after months of the most faithful trial of the plan he has ever witnessed, the case was treated surgically and a prompt cure rapidly effected. In this latter instance *all* the disease was not removed by the curette, and the mild caustic application stimulated the growth of the remaining cancer elements.

In a large number of cases which he has observed, where the pyrogallol was used, the same unsatisfactory results followed, so that in his judgment it can only be useful in those semi-malignant ulcers of the skin which have no elevated or indurated borders, while in the ordinary epitheliomata its use is not alone useless but positively injurious. The successes with pyrogallol and resorcin are so exceptional that their use in such cases should be discarded altogether. Nitrate of silver is one of the most frequent of mild applications and also one of the most injurious. It is probable that no epithelioma of the tongue ever escaped an application of this remedy, and it is equally certain that no case was ever benefitted thereby.

The author then proceeds to consider the effects of such applications upon the healthy skin. The epidermal layers are promptly destroyed; but as they contain no power to carry diseased cells into surrounding tissues, their safety or destruction does not concern us now. The changes in the true skin are those belonging to simple inflammation, viz.: hyperæmia with engorgements of the affected parts with blood, swelling, redness, pain, often œdema resulting from stasis in the vessels, and *increased activity* to the tissues, with tendency to new products It cannot be doubted that the blood-vessels and lymphatics are absolutely essential to a healthy propagation of the cancer elements, in the skin as elsewhere in the body.

Given an area of skin infiltrated with malignant disease, and then stimulate all the activities of adjacent tissues, and only one result can follow—a greater degree of activity to the diseased area. "This brings us to the laying down of this proposition, justified by experience as well as philosophy: *No mild caustic application should ever be made to any cancerous surface under any circumstances.* Only such caustics are admissible as *completely* and *rapidly* destroy the diseased tissues—such remedies destroy the vessels and lymphatics adjoining, and so prevent dissemination of cancer elements."

An exception, he thinks, should possibly be made in favor of one mild remedy, the galvanic current. Julius Althaus recommended its use in a paper published in 1869, and several writers have since advised its use in these cases, prominent among whom was the late Dr. Beard, of New York. It is not as a caustic, however, but by the chemical action of the negative pole, attached to a five-celled battery, that a marked change in the diseased tissue has been effected, which terminated in complete cure in several instances. His own experience is too limited to enable him to express an opinion, but a few applications made by Dr. Fox in a lower lip, which was extensively diseased, caused a very decided softening and shrinking of the growth. The case is an incurable one, or the author would insist upon a very thorough trial of the remedy.

Late Inherited Syphilis; Gumma of Liver with Hectic Temperature.

DR. BRISTOWE records (*Clin. Soc. Trans. XIX.* 249) a case interesting as regards symptoms and difficulty of diagnosis. A boy aged fifteen was admitted to St. Thomas's Hospital suffering from a localized tumor of the liver, and at the same time from pyrexia of rather peculiar type. The temperature was usually subnormal in the morning, ranging from 95.6° to 97° F., and rising in the evening to a height of 100° to 103°. There was no history pointing to syphilis, and no positive diagnosis was made. An exploratory puncture gave entirely negative results. On more minute investigation of the eyes, however, evidences of past syphilitic keratitis was obtained, and a history of an affection of the eyes at seven years of age. Under the guidance of these results antisyphilitic treatment was adopted, consisting in the administration of five grains potassium iodide with thirty minims solution of perchloride of mercury (B. P.) three times a day. After four days of this treatment, the temperature which had been febrile for ten weeks, became normal; and after that subnormal, not rising to 98° even in the evenings, while the swelling of the liver gradually disappeared, and the boy left the hospital perfectly well. Febrile temperatures in inherited syphilis, or even in late stages of acquired, have been so little studied that this case has much interest.—*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1888.

Practical Observations on Kidney Stone.

JORDAN LLOYD, M. S., F. R. C. S., surgeon to the Queen's Hospital, Birmingham, in the *Practitioner*, September, 1887, describes as a contribution to our means of reducing the number of "missed" calculi, a method which has served him well on more than one occasion when exploring the complicated interior of a normal kidney. He thinks it infinitely more reliable and quite as easy to execute as either "needling" or palpation. The procedure is analogous to the method of detecting stone in the bladder, differing from it only in the one particular, that the kidney's interior is reached through an opening artificially made. When the kidney is exposed through a lumbar wound he punctures its lower end with a long-bladed tenotome, in a direction upwards and inwards, making for the lowest of the calyces. If the surgeon is observant and his knife is keen, he will readily appreciate the moment when a cavity is struck by the altered resistance, offered to the puncturing instrument. When once this phenomenon has been experienced it will never afterwards be forgotten. It is important, because a tenotome may be sunk up to its handle in a normal kidney without tapping its interior cavity, having traveled *along* the kidney substance rather than *through* it. Into this opening he passes a child's bladder-sound, and systematically explores the whole interior of the pelvis. This sound should be of special construction, having a beak not more than one-third of an inch in length, a stem about seven inches, and the size of a No. 3 English catheter. It should be passed at once to the top of the kidney cavity, a distance of nearly four inches, and the exploration should be carried out systematically from above downwards, the point being rotated in all directions so as to investigate both tubes and calyces as the instrument is withdrawn. In this manner he has succeeded in finding a

calculus in a patient after needling and palpation had been assiduously tried with negative results. Theoretically the method is perfect, practically it will become so too, as experience increases, and as sounds become modified to meet the mechanical requirements of the irregular tubular interior of the kidney.

Having found the stone, its position should be localized precisely, and should be cut down upon immediately. A fresh incision altogether must be made when the calculus is situated away from the immediate neighborhood of our primary puncture. Forceps of all kinds are clumsy for the removal of small kidney calculi. A finger and scoop is a much more suitable arrangement, for remember, the stone does not lie loose in a big cavity, as is the case in the urinary bladder, but lies like a bullet at the end of the track of a wound. It is to these cases that the term "nephro-lithotomy" is most properly applied, and in them that our most brilliant triumphs in the treatment of renal diseases are attained. Mr. Lloyd knows no result more satisfactory to the patient and the surgeon than that secured by the successful removal of a small prickly stone from the healthy kidney of an otherwise healthy young adult. It is imperative upon the medical man to urge immediate operation in every such case at a time when the kidney is uninjured and the stone is small.

The second variety results when a stone has set up catarrh of the linings of the pelvis or calyces. The stone grows and expands the calyces while their walls become thickened, accretion takes place in the areas where pressure is least, and the stone thus comes to be a cast of the dilated spaces which it occupies. There is room for the urine to escape between the stone and its surrounding sac; there is no urinary obstruction; and renal tissue may be destroyed by continued suppurative inflammation or as the result of pressure of the foreign body. It is curious to what sizes such stones may increase, and to what slight symptoms their presence may give rise. It frequently happens, however, that suppurative inflammation is set up in the kidney-tissue itself, and that the pus finds its way into the perinephritic connective tissue, giving rise to abscess which may burst through the loin, forming urinary lumbar fistula. The presence of a lumbar swelling, with pyuria of some duration, and pyrexia, in association with other symptoms of nephro-lithiasis, would suggest this kind of stone. Its removal is a more simple matter than in the first variety, and often indeed the extraction of the stone is a mere incident in the opening of a lumbar abscess; such an operation is a "nephrotomy" and does not merit the title of "nephro-lithotomy."

The third variety of calculus is constituted by the small stone which rolls about the pelvis and engages, at times, in the orifice of the ureter, blocking up its cavity. Here the outflow of urine is checked, and if the ureter remains permanently plugged, an atrophic degeneration usually sets in, and the kidney may shrink to the smallest possible dimensions. If, instead, the plugging calculus escapes again from time to time, the urine finds it way into the bladder, but the kidney pelvis ultimately becomes distended into a locular cavity whose walls may be devoid of secreting substance. Often a calculous pyelitis is set up, which advances until the kidney is totally destroyed. This blocking calculus is frequently found in association with many companions lying in varying numbers in crypts formed by the dilated calyces. In this variety, too, stones are often found in both kidneys. When one kidney only is affected, a diagnosis may be

arrived at by comparing the quantities of urine passed when the ureter is plugged, and when it is free; and by the development of a swelling in the loin (hydro- or pyo-nephrosis) which passes away as the other symptoms subside. Plugging of one ureter will often pass undiagnosed until the other is similarly affected, when suppression of urine becomes the dominant clinical feature.

A few general observations on some of the leading symptoms of renal stone are in place. Pain of a dull, heavy, dragging character, constantly located in one loin, sometimes shooting down the course of the ureter and along the spermatic cord to the testis, and always increased by exertion, is fairly diagnostic of stone; but unfortunately for our art the symptoms of disease are rarely true to type, their manifestations are capricious, and their inconsistencies are manifold.

Pain may be present in both loins and it then becomes very perplexing; or it may be referred to other and distant parts, so that the lumbar trouble may be altogether uncomplained of. Attention should be particularly directed to these "referred pains," because from them will often be derived the most important evidence in diagnostic jurisdiction. A case of nephro-lithiasis under treatment at the present time illustrates this: A gentleman fifty years of age, complains of pain in the upper part of the back of the right thigh—an area supplied by the small sciatic nerve—of eighteen months' duration, sometimes similarly affecting the opposite limb, and always made worse by moving about. He had no other symptoms at first; but subsequent paroxysmal hæmaturia, with lumbar tenderness, pointed to the kidney as the seat of his disorder. Mr. Lloyd has seen a stone removed from the kidney of a patient whose disease had been diagnosed and treated at one time as acute hip disease, at another time as spinal caries. He has at the present time under treatment a precisely similar case in which he suspects renal calculus, and which has already been regarded as hip joint and spinal disease by different surgeons.

Another interesting point with regard to pain is, that it occasionally dates from injury of some kind. A gentleman complained once to Mr. Lloyd of pain in his right leg and loin caused by slipping and "twisting" himself sixteen months before He was perfectly well previous to his accident, never having felt pain in any part. The pain came on at the moment of his slipping, and has continued on and off ever since. Three months after the injury he first noticed blood in his urine. A robust laborer in a timber-yard came under Mr. Lloyd's observation with undoubted symptoms of renal stone. His history showed that his first attack of pain occurred at a moment when he slipped, whilst carrying a heavy baulk of timber. Hæmaturia came on during the same day. In these cases the stones existed before the injuries, and the jarring or sudden straining induced by the accident mechanically irritated the kidney with its inlying calculus.

The author attaches great importance to the evidence to be obtained by immediate percussion over the suspected organ, a method of investigation which has not received that amount of attention to which it is entitled. It is best practiced from the loin, just beneath the space between the tips of the last two ribs, and should be made in a direction upwards, forwards and slightly inwards. It is best for a patient to stand upright. The blow should be sharp and decisive and of force sufficient to affect a structure situated several inches below the surface. It may also be practised from the front, at a point midway between the

umbilicus and the ninth rib. When a calculus is present the patient will complain of sharp stabbing pain at the moment of percussion. Other conditions doubtless give rise to percussion pain, but not of the characteristic stabbing of calculus.

Painful gastric disturbances occasionally call attention altogether away from the actual seat of disease. A few months since, Mr. Lloyd successfully removed a small stone from the kidney of a neurotic young lady whose gastric symptoms for a long time had entirely masked her renal disorder. Another point of interest in her case was that sometimes pain would come on when she was at rest, and would be relieved by walking about, a state of things just opposite to what one is taught to expect.

Vesical complications are frequently most perplexing, and may obscure for a long time the presence of nephrolithiasis. They are of two distinct kinds, one due to simple transference of nerve impressions, in which the bladder is perfectly healthy, and the other depending on inflammatory disease in the bladder itself. Frequent and painful micturition in common to both, and calls for careful examination of the bladder's interior by "sounding," for it must always be remembered that a renal calculus of yesterday may have become a vesical calculus to-day, and this too, sometimes, without a patient having suffered the agonies of renal colic. When with vesical irritability the urine is acid and free from mucus, sounding will usually yield negative evidence merely; on the other hand, if the urine is alkaline and contains ropy mucus or muco-pus, a stone is more likely to be present in the bladder. But still the most acutely inflamed bladder may depend upon renal causes, and of these scrofulous kidney is the most common, and stone must be included in the list. If cystitis is existent when a patient with renal calculus first comes under treatment, an accurate diagnosis is often extremely difficult. Pus in alkaline urine fixes the attention on the bladder as the seat of disorder, and it is only after failing to find any vesical, prostatic, urethral, or spinal cause for the cystitis that attention is directed to the kidney as the primary seat of disorder. It is from the history in such cases that the weightiest evidence will be derived.

Syphilitic Myositis.

Newmann has called attention to a sequel of syphilis not generally recognized. It consists in great pain in the anal region, with tenesmus, due to a specific myositis of the external sphincter, and is not an infrequent symptom after the cure of lesions in the mucous membrane of the rectum. It is commoner in women than men, no doubt in consequence of the greater frequency of papules and rhagades in the female sex. The treatment consists in local and general anti-syphilitic measures, and if necessary, division of the sphincter.—*Deutsche med. Wochenschrift*, Nov. 24, 1887.

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I. ANATOMY, PHYSIOLOGY AND PATHOLOGY.

Cyst of the Pancreas.

A case of this nature is described by Kühnast (*Centralblat für Chirurgie*, Jan. 28, 1888), in which the following symptoms were present. The patient, a man fifty-one years old, who had drunk a good deal, suffered for some five weeks before he came under treatment with obscure pains in the abdomen and symptoms of jaundice. An examination of the abdomen revealed a small hardened liver with ascites. The patient was tapped, whereupon a tumor, about the size of two fists, was easily felt lying under the left lobe of the liver in the middle line. It did not seem to have any connection with the liver, nor did it move up and down in respiration. The diagnosis appeared to rest between carcinoma of the stomach and cirrhosis of the liver. In the course of the next few weeks violent vomiting of a coffee-ground-like material took place, accompanied with violent pains at the pit of the stomach, which eventually terminated in collapse and death. The post-mortem examination revealed a cystic condition of the pancreas, which pressed on the pylorus and upper part of the duodenum to such an extent as to cause an almost complete obliteration of their lumen.—*Practitioner*, May, 1888.

Filaria Sanguinis Hominis.

Alfred G. Bourne, D. Sc., Professor of Biology in the Presidency College, Madras, in a communication to the *British Med. Journal*, May 19, 1888, says that our knowledge of the adult form of this worm is still incomplete. It was discovered by Dr. Bancroft, in Brisbane, in 1876. It has also been found by Dr. Timothy R. Lewis, in Calcutta; Dr. Patrick Manson, in Amoy; Dr. Silva Aranjo and Dr. F. Jos. Santos, in Brazil. Dr. Lewis and Dr. Manson have each given descriptions of their specimens. All these specimens were imperfect, and are stated by Cobbold to have all been females. This authority states in his book (*Parasites: a Treatise on the Entozoa of Men and Animals*, 1879) that the male parasite is unknown. This was not, however, strictly correct, as Lewis in the paper (*Quarterly Journal of Microscopical Science*, 1879) referred to by Cobbold, states that he found portions of two specimens; the one was about one inch and a half long, and belonged to a female, from which the caudal extremity had been severed, while the other was a fragment of a male worm. Of this latter he says: "It measured half an inch in length, and $\frac{1}{180}$ of an inch transversely; it was thinner than the female, but of considerably firmer texture—so firm, indeed, that whilst endeavoring to make out its anatomy a considerable portion of it was lost by one of the needles used for dissecting snapping, and carrying a portion of the worm along with it. On tearing the helminth across, the severed surface does not present a ragged edge, but an even outline. The male manifested also a great tendency to coil, and it was only with difficulty that

it could be separated from the specimen of the female parasite, around a portion of which it had twisted itself. It is unfortunate that its caudal end, especially, could not be found, as the definite decision of the genus to which it should be referred depends in a great measure on the characters which the posterior end of the male worm presents."

Brigade-Surgeon Sibthorpe has had several cases of filarial disease in the General Hospital at Madras, and has always made a search for the adult worm; this has hitherto proved fruitless. Recently, however, after an amputation of a lymphoid scrotum, he found two worms which he had mounted and identified as adult filariæ. He had found embryo filariæ swarming in the patient's blood on the previous evening. He sent these specimens to Mr. Bourne for examination, and the latter found that one was a female, while the other was a male. The female specimen agrees very closely with Cobbold's figure, but the vagina is everted or protruded. Dr. Smyth, resident surgeon to the hospital, who mounted the specimens, says that the eversion took place during mounting; it is probably a normal act during life. The caudal portion is wanting. The male specimen is about an inch and a quarter long; the anterior extremity is wanting, but the caudal extremity is intact, and presents two spicules. The structure of these spicules will doubtless form a valuable specific character. Unfortunately, only one of these spicules remains *in situ;* the other has dropped out in the mounting, and lies nearly isolated on the slide. The spicule is broad at its proximal extremity and gradually tapers until it becomes capillary in character. About half way down there is a lateral prominence, and when *in situ* the spicule is folded on itself so that this prominence forms the actual free extremity of the spicule, while the broad end and the capillary end lie near to one another.

A description and figure of this specimen, which, with the exception of Lewis' fragment, is, Mr. Bourne believes, the first recorded specimen of the adult male filaria sanguinis hominis, will be published in an ensuing number of the *Transactions* of the South Indian Branch of the British Medical Association.

It is interesting to note that in this case, as in Lewis' case, the male and female were found in close contiguity.

Case of Cyst of the Pancreas.

Dr. J. A. Nichols, of Plattsburg, N. Y., in reporting this case to the *N. Y. Medical Journal*, May 26, 1888, says: Pancreatic cyst may be occasioned by any cause which obstructs the common duct or any of its branches, as by the impaction of calculi, partial or complete obstruction by cicatricial contraction, or a sudden or gradual obstruction of the duct without diminution of its lumen by displacement of the pancreas. Thus the pancreatic juice, obstructed in its flow, dams back, distends the ducts, causing a degeneration and absorption of the parenchyma of the gland, leaving the distended capsule to form the cyst wall.

The case which I have to report was that of a man, forty-nine years old, American, who, twelve years prior to his death, first complained of very severe pains in the epigastrium attended with a feeling of fulness in that region, but having no nausea or dyspepsia. These symptoms would continue with more or less severity for a week or so, and then disappear, returning at intervals of two or three months. These periodical pains were preceded by a rather peculiar

premonitory symptom, which I will not endeavor to explain, consisting of a most intense itching of both feet, which subsided on the advent of the pain. His appetite during the most of the time was voracious, and never poor; any food ingested caused him no disturbance. The patient's condition remained apparently unchanged for about seven years, when he consulted his family physician for excruciating pains he was having in his right arm and forearm, said at the time to be rheumatic. The pains were not constant, but continued, attended with atrophy of the muscles, although he had the use and control of the member. During the same year he had a circumscribed peritonitis, after which, until his death, he had periods of vomiting the peculiar coffee-ground material so common in malignant disease of the stomach.

Three years before his death the first evidence of any tumor of the abdominal cavity was discovered. He was seen by some of the most eminent men in the profession, but all alike failed to make a diagnosis. He refused to allow an exploratory incision or aspiration to be made. At about the time of the discovery of the tumor, symptoms of diabetes presented themselves, and large quantities of sugar were found in the urine. He became greatly emaciated, although his appetite and digestive powers remained fairly good and his bowels regular, and he finally died, February 27, 1887, of asthenia.

At the necropsy the following day a cyst was found, holding about four quarts of serous fluid, occupying a large portion of the abdominal cavity, bound down by adhesions at various points. No trace of the glandular structure of the pancreas could be found.

Suppuration and Septic Diseases.

W. Watson Cheyne, F. R. C. S., in his lectures on Suppuration and Septic Diseases, delivered at the Royal College of Surgeons, February, 1888, says (*British Medical Journal*, March 10, 1888): We thus come to the end of our consideration with regard to the factors involved in the production of suppuration and septic diseases. It must be admitted that our knowledge still shows many blanks, but nevertheless, enough has been gained to enable us to judge what are the most essential factors which come into play. That the pyogenic organisms are essential for the production of these diseases as they occur naturally there can no longer be any doubts; but in many cases much depends on other conditions, of which the chief probably, are the dose or number of the organisms and their concentration, general and local depression of vitality, and the seat of inoculation. If the organisms enter in large numbers, sufficient to overcome the resistance of the body, they alone may cause the disease; frequently, however, they enter in smaller numbers, and then other conditions become necessary to enable them to act. Of these conditions the chief are, as I have said, depressed vitality—either local or general—combined with the possibility of their remaining in the weakened tissue. This depression of vitality may be brought about by conditions acting on the body generally, such as acute fevers; or by local conditions, more especially those which induce the early stage of inflammation, such as cold, injury, chemical substances, the products of the bacteria themselves, or the products of other kinds of bacteria which may happen to be growing along with them. Or again, the favorable condition may

be some peculiarity in the soil, as shown by variations in the character of the disease in accordance with the seat of inoculation and the anatomical arrangement of the part. The only factor, however, with which we can reckon with certainty, is the cocci themselves.

Cases illustrating the Pathology of Gangrene from Embolism and Arterial Thrombosis.

At the meeting of the Pathological Society of London, April 17, 1888, MR. BOWLEY brought before the Society a series of specimens illustrating the pathology of gangrene from embolism and arterial thrombosis. The first was a gangrenous hand from a man 63 years old, who was admitted in 1884. He had always been healthy until just before admission, when he had symptoms of heart disease. A fortnight before, while cleaning his boots, he was seized with pain in the thumb, which became numb and cold, and this condition shortly afterward extended to his fingers. There was evidence of advanced heart disease. The thumb was black and shrivelled, and the fingers blue and cold. There was no pulsation in radial or brachial arteries. The gangrene slowly spread, and he died a few days later. *Post mortem* the heart was found enlarged and fatty; the mitral orifice very much dilated; arteries atheromatous. The brachial artery was normal as far as the bend of the elbow, where it was blocked. The specimen showed exceedingly well a multiple embolism. The second case was that of an old and feeble man, admitted November 7. He had pain and tenderness in the left leg. He had rheumatic fever and a history of heart disease. The left foot was gangrenous, and no pulsation could be felt in the arteries of the left leg, not even in the femoral artery. This slowly cleared up. On December 12, the patient was suddenly seized with pain in the right leg below the knee. The limb became cold, and pulsation ceased in the right femoral artery. Ultimately the limb became gangrenous, and two days later he had right hemiplegia, soon after which he died. He showed the plugging of the arteries of the brain, and the right femoral was blocked; the left femoral, the first to be affected, was clear. In another case, a man had had rheumatic fever forty years previously. There was evidence of heart disease. On December 9, 1885, he was suddenly seized with cramp-like pain in the left groin, and the left leg became cold. Gangrenous patches showed themselves on the outer side of the thigh. On December 13, the leg and foot became gangrenous, and the patient died. The heart was found to be extremely diseased, and the right femoral artery was blocked by an embolus. The fourth case was that of a woman 37 years old, who was suddenly seized with pain in the left groin, followed by coldness and numbness of the foot, and ultimately by gangrene. There was no evidence of heart disease. All these cases were specimens of embolic gangrene. It was rare, he said, to see such large vessels blocked by emboli. An embolus generally blocked the artery at a bifurcation, thus occluding two vessels; and secondary emboli were common. In all the cases except one the heart was diseased. Mr. Bowlby then showed two cases of gangrene from arterial thrombosis, though one of the cases was complicated by embolism. A woman 56 years old was admitted in 1885. She was seized while walking, with pain and numbness in the left leg. She had heart disease, and sank and died. The aorta was completely filled with a large clot, and, on washing this

away, a raw patch was found, on which the blood had clotted to the extent of complete occlusion. Plugs were also carried into the arteries of both lower extremities. The other specimen was the hand of a comparatively young woman. Her general health had been fairly good. In December, 1883, she "caught cold," and never recovered from it. Weakness was the prominent symptom. Her legs, feet and hands were liable to become cold, blue and swollen, all together. In the first week of February the left hand became more numb, and gangrene set in. No pulsation in the vessels of that arm, which was the seat of a burning pain. The patient gradually became weaker, and the circulation almost imperceptible. She became comatose and died. The heart was found quite normal; in fact, no disease was found anywhere except in the left upper extremity, the arteries of which were completely and evenly filled with clot. This case was unique. It was difficult to assign any definite cause for the thrombosis, yet the history pointed rather to a general than a local cause.—*British Medical Journal*, April 21, 1888.

Case of Acute Meningitis.

At the meeting of the Boston Obstetrical Society, March 10, 1888, DR. HOSMER reported a case of acute meningitis. The following are notes of an autopsy made five hours *post mortem* March 8, 1887, by Dr. J. A. Mead: Bloodvessels the pia and cortical substance injected, and clots in the vessels of the former. Both hemispheres presented a dull, glazed appearance, and their convolutions were adherent; between the two hemispheres, also, there was some adhesion. Fissure of Sylvius was closed. No tubercles at base of brain. No pus. Other organs normal.

The patient was a girl nineteen months old. She had thirteen teeth, the last one cut being the left canine. In the summer of 1886 she had a diarrhœa, which was not very severe, but rather persistent. Otherwise the child had been a healthy one. During the night before her death she had been less quiet than usual, but her mental condition was perfectly normal. She was playful and bright until 6.30 o'clock, when there was a slight convulsive action. Consciousness was perfect until an hour later, from which time the symptoms became alarming. Death occurred at 12.30, six hours after the first significant symptom appeared.

Very early in the case laryngeal obstruction had become so marked that the family and neighbors supposed it to be an attack of croup, and with that idea sent for Dr. Hosmer. The absence of headache and of distinct nausea and vomiting should be noted. At 9 o'clock the temperature was 106.3° F. At 10 it had risen to 107.6° F., a very high temperature. At 11 it had fallen to 105.4°.

For a moment, the influence of some infection was suggested by the remarkable temperature which speedily attended a sudden and severe attack, but that suspicion was soon abandoned. That it was not extremely absurd is shown by a case reported by a German authority, in which scarlet fever was supposed to exist. While the appearance of the eruption was anxiously being waited for, death overtook the child. An autopsy made a diagnosis of acute meningitis.

On the Distribution of the Cutaneous Nerves on the Dorsum of the Human Hand.

At the meeting of the Section in Anatomy of the Royal Academy of Medicine in Ireland, Jan. 6, 1888, Dr. Brooks read a paper on this subject, in which he showed that the areas of distribution of the nerves often overlapped one another. In five cases which he had dissected for the purpose, he had found the radial and dorsal branch of the ulnar nerves overlapping for a certain extent. In the case that he had examined with the greatest care, they overlapped in their distribution for the extent of three fingers (index, middle, and ring), with a corresponding area on the back of the hand. He had also succeeded in tracing filaments of the musculo-cutaneous and external cutaneous branch of the musculo-spiral overlapping the radial and ulnar; the musculo-spiral in one case reaching the metacarpo-phalangeal articulation of the little finger. He found that the dorsal nerves extended in the case of the thumb and little finger as far as the nails, in the index and ring fingers as far as the second interphalangeal joints, and in the middle finger only as far as the first interphalangeal articulation. He had found the palmar nerves taking part in the dorsal supply of all the fingers, not excepting the thumb; in several cases he had traced strong branches of the median passing under the thumb nail, and ramifying in the bed of the nail. It was well known that the median and ulnar nerves encroached on one another's domains; some remarkable and instructive cases of this had been recently described by Dr. Hepburn, but he had not met with any record of the nerves overlapping in the literature of the subject, except that in one of Henle's figures it was shown to a very slight degree, but not described in the text. Through the kindness of Mr. Wheeler, the author had had the opportunity of examining a patient in the City of Dublin Hospital who had undergone the operation of section of the ulnar nerve. Sensation was completely lost in the little finger, and half the ring finger, and over a corresponding area of the back of the hand. Over the greater part of the dorsum of the hand, as far as the base of the index finger, the sensation was very perceptibly dulled. Dr. Cunningham said there was not the least doubt that Dr. Brooks had made out a perfectly new point in regard to the intercrossing of nerves. All were familiar with the great variation in the nerve-supply of the skin, but they considered hitherto that when one nerve advanced into the territory of another, the nerve so invaded retreated. Now Dr. Brooks had shown how completely erroneous in this respect their impressions were. Dr. Brooks, replying, said the point he contended for as new was the overlapping of the nerves; for it was already well known there was a struggle between the two nerves—sometimes the ulnar nerve going to the radial side, and the radial to the ulnar side.—*British Medical Journal*, Feb. 11, 1888.

Muscle Infiltrated with Trichinæ.

At the meeting of the Chicago Medical Society, Jan. 3, 1888, Dr. W. T. Belfield exhibited a specimen of muscle infiltrated with trichinæ. It was a piece of gastrocnemius muscle from the amputated leg of a man then in the Cook County Hospital. Some eighteen years ago this man, then a resident of New York, in company with a number of other individuals ate of some poorly cooked ham and sausage; nearly all of those who partook of this article of diet became

very ill within a week, and a large percentage died. This man was very ill for two months, and did not entirely recover his health for some four months. In consequence of the circumstances surrounding the case the disease was recognized as trichiniasis, and an examination of the muscles of those who died confirmed the diagnosis. This man recovered, and during the succeeding 18 years he has enjoyed good health, except that he has at various times, and more especially during the last six or eight years, suffered from rheumatism in different parts of the body.

This muscle, like all the other muscles of the amputated leg, is thickly studded with trichinæ. By taking a fresh cut surface near the light the little white specks can be seen very closely set. These are shown under the microscope to be trichinæ. Pieces of muscle taken from all parts of the amputated leg are found as thickly set with the parasites as is this piece, and inasmuch as these parasites are more numerous in the trunk than in the limbs, it may be inferred that the number of trichinæ this man contains in his body runs up into the millions. Of course it is not unusual to find muscles studded with trichinæ in individuals who have been in the habit of partaking of raw sausage or half cooked pork; but it is rare to find them so thickly placed where the history makes it certain they were taken at one time. Very few persons recover who swallow so many at one time as to produce so numerous a progeny. Those who are in the habit of taking uncooked pork can at different times take a few trichinæ without at any one time suffering from the invasion of so large a number as to produce the acute symptoms of trichiniasis.

The amputation was for disease in the knee-joint, and had nothing to do with the condition of the muscles.

Indigo-Forming Substance in a Pleural Exudate.

Dr. P. Guttmann, in a communication to the *Deutsche med. Wochenschrift*, No. 51, 1887, states that, upon evacuating by puncture a sero-fibrinous, pleural effusion, the latter assumed, after standing about an hour, a striking greenish-blue shimmer, which became changed, in the course of a few weeks, to a deep blue color. The reason for this was investigated by transferring the fluid to a suitable soil, and by examining it for fungi with the microscope. None of the latter were found; but there were pretty numerous needle-shaped crystals, and a chemical examination proved the presence of indigo-blue. It is assumed that this must have existed as indigo-white in the exudate, and have become gradually changed into indigo-blue under the oxydizing influence of the oxygen in the air. Heretofore indigo-forming substances have been found only in the urine, and on one occasion in the scrotum. It is possible that their occurrence would not be so rare as they now are if pleural exudates were kept longer.—*Centralblatt f. d. med. Wissenschaften*, May 5, 1888.

Herpes Digitalis.

In the *Deutsche med. Wochenschrift*, No. 27, 1887, A. Bloschko reports a case in which a young man had an affection of the skin limited to the palmar surface of his right index finger. This eruption occurred at intervals of several weeks, and was characterized by the appearance of vesicles filled with serum,

arranged in groups, and seated upon an elevated, slightly reddened base. The number of the vesicles was, for the most part, from five to eight; they did not disappear by spontaneous resolution, but rather, if the vesicles remained unbroken, led to a lymphangitis and swelling of the axillary glands, which was often very painful. Some days before the appearance of the eruption there were slight neuralgic pains in the right arm and in the index finger, which were noticed on squeezing the hands; but these disappeared before the eruption occurred. The regularity with which this neuralgia preceded the skin eruption is in favor of a nervous origin of the latter, which was very similar to herpes labialis and herpes progenitalis. Pathogenic organisms could not be recognized in the contents of the vesicles; but there were found in them small collections of cells of the rete in a state of necrosis, from which it seems to follow that the affection of the nerves leads to a minimal necrosis in the epithelial territory supplied by them, which in turn furnishes an inflammatory irritant and the occasion of the vesicles.—*Centralblatt f. d. med. Wissenschaften*, May 5, 1888.

Alcoholic Paralysis of Phrenic, Pneumogastric and other Nerves.

At the meeting of the Pathological Society of London, April 17, 1888, Mr. Sharkey showed some microscopic sections from the case of a woman who was admitted on August 27, and died on September 25. She had been an in-patient six months before, for what her husband called "liver complaint with yellow fever." She had been a hard drinker, principally of whiskey and beer; had suffered from diarrhœa and hæmoptysis (one attack). She had been losing flesh and strength, and was very weak in her legs. She had also complained of numbness and cramp in her legs. On admission, she could understand well enough what was said to her, but was incoherent in her replies. Respiratory sounds harsh, but no evidence of pulmonary disease. Liver enlarged and hard. No albumin in urine. Legs wasted, especially in front of tibiæ. She could neither walk nor stand. The legs were tender, both superficially and on deep pressure. Temperature normal. Tremors of the tongue and lips. A few days later she had a rigor; her temperature went up to 102.8° F. On September 13, she had two severe attacks of dyspnœa, and it was then noticed for the first time that the diaphragm was completely paralyzed. There was a difficulty in swallowing. Respirations 40 to the minute. On the morning of the 15th, she began to spit blood. The average pulse-rate was 143. On September 23, the apices of the lungs showed signs of breaking down, and on the 25th, she died in a sudden access of dyspnœa. *Post mortem*, the diaphragm was found on a level with the fourth rib; slight hemorrhage beneath pericardium over right ventricle; tuberculosis of apices. Liver hard and firm, in early stage of cirrhosis. Kidneys normal. Spinal and cerebral membranes healthy; brain normal throughout. In the dorsal and lower cervical regions there was softening, which seemed to be pathological and not a post-mortem change. The microscope revealed slight general inflammatory vascular changes throughout the whole central nervous system, including the motor convolutions and spinal cord, though the changes were trivial except in the lumber enlargement. The brunt of the disease had

dently fallen on the peripheral nerves, inflammatory changes being intense in the phrenic, pneumogastric and popliteal nerves; there were inflammatory changes also in the muscles supplied by these nerves. Dr. Ormerod observed that, as a rule, alcoholic neuritis got well when the cause was removed; but some cases did succumb quite suddenly. He mentioned a case which bore on the subject of sudden death through the pneumogastric, from the post-mortem room at St. Bartholomew's Hospital. It was the case of a child under Dr. Andrew, who had just recovered from diphtheria and was apparently well. Being a weakly child, she developed abscesses in the neck; but she was going on well, when suddenly she died, and at the post-mortem examination it was found, on dissecting up the pneumogastric nerve on one side, that it was involved in the capsule of an abscess, which had pressed upon and flattened it. Nothing else was found to account for the sudden death.—*British Med. Journal*, April 21, 1888.

Infectiousness of Cancer.

In the *Berliner klin. Wochenschrift*, March 5, 1888, Dr. Emil Senger states that he has been experimenting regarding the infectiousness of cancer, and that the animals he inoculated with particles of cancerous matter, without exception, seemed to be nothing the worse. He determined, however, to repeat the experiments of Scheurlen, who asserted that in a third of the dry preparations made from cancer juices there were spores which were colorable in the usual ways. Senger could not convince himself of the presence of those spores; he only saw drops of fat, which certainly had a remarkable resemblance to spores. If, however, he took a piece of soft cancerous tissue and shook it energetically in a test-tube with ether and chloroform, the professed spores diminished in number and disappeared. He also saw large cells with granular protoplasm, so that they seemed filled with cocci. These granules were, however, much smaller than the spores. He thinks that even theoretically this find of spores is an insecure and contradictory one. For if so many spores are contained in the juices, they should grow to bacilli, and these latter should be more readily rendered visible than the spores. But Scheurlen confesses that he has found very few bacilli in the juices, and in sections Senger neither found bacilli nor spores, and yet the bacilli are said to be stained easily and to grow with great rapidity.

Senger set to work with ten cases of carcinoma, and did not content himself with Scheurlen's nutrient media, but used gelatine and agar, combinations of both, coagulated blood serum of ox and sheep, human ascitic fluid solidified, etc., and potatoes.

Although he made 350 inoculations in his test-tubes, yet never once did any specific fungus grow; he therefore considers himself justified in concluding that, with any of our present nourishing media and usual methods, no bacterium which has any etiological relation to the tumor can be cultivated from cancer.

Scheurlen, however, sticks to his bacillus, and even asserts that he can certainly diagnose cancer when it is found. Senger, however, in dogs, rabbits, mice, and one pigeon, in which he had injected the bacillus obtained from Scheurlen himself, observed no pathological disturbance whatever. Another objection of Senger's is that if, as Scheurlen says, cancer-juice contains so many spores, Scheurlen's own inoculations should have been more fruitful than they

actually were; furthermore, it is without analogy that a fungus taken from out the body should grow only on one single medium, and yet, if transplanted from this first medium to almost any other, should increase luxuriantly.

Senger, in fact, thinks that to regard this organism as the cause of cancer is objectless; it has to be determined what the fungus actually is which Scheulen describes, and whether it is often, naturally or subordinately, to be found in cancers. Now, it is a difficult thing to establish the identity of a fungus. Senger has found that, by inoculating potato with a bit of cancer, he can obtain the Scheurlen bacillus abundantly; comparative examinations of this fungus with Scheulen's and of one obtained directly from the potato without any inoculation have led Senger to the result that really this cancer bacillus is nothing more than a potato bacillus. The spores of this bacillus are tolerably resistant; he has laid a potato two hours in corrosive sublimate solution (1 to 1000), then cooked it two and a half hours in the steaming apparatus, and yet found the organism.

The "potato bacilli" have not yet been sufficiently studied, separated from each other, or named. Senger reckons this cancer bacillus of Scheurlen to the potato series on the following grounds: Its morphological behavior and its spore formation are the same; the bacillus is mobile, it liquefies gelatine, and forms a white membrane on its surface; furthermore, it has for the most part a slightly wavy, wrinkled, mesentery-like growth, and is not pathogenic. The potato bacillus present in earth, dust, putrid fluids, fæces, etc., possesses all these qualities, but is not identical with the Scheurlen bacillus. It agrees very well, however, with the description of the everywhere present bacillus mesentericus fuscus of Flügge.

The results of Senger's investigations seem thus, so far at least as the discovery of a peculiar exciter of cancer goes, to have fallen out negatively. Nor can the great aim of the discovery of the cause of cancer be reached in a short time. On the contrary, before any other thing, the foundation of an earnest, purposeful bacteriological endeavor to find the cause of cancer must be laid in its transmissibility by inoculation. Without this basis the discovery of a bacterium by cultivation is not only difficult, but without prospect of result. It should not be forgotten that the mechanism of the etiology of cancer is a very complicated one, and that, after successful transmission of the disease by inoculation, only by new methods of cultivation can it be deduced which of them best suit the physiological necessities of the hypothetical micro-organism.—*Edinburgh Medical Journal*, April, 1888.

Histology of Cancer and Normal Tissues after Sterile Incubation.

Further experiments on the infectivity of cancer were reported to the London Pathological Society, May 15, 1888, by Messrs Shattock and Ballance, and were described by Mr. Ballance. After referring to their previous papers on the possibility of maintaining portions of tumor incubated for prolonged periods in the sterile condition, the results of microscopic examination of such portions of tissue were related. The cancer tissues were kept continuously at 100° F., and were found to present certain peculiar appearances which were not

observed in healthy tissues thus treated. Zeiss's $\frac{1}{18}$th immersion combined with ocular 1 or 3 was used for the examination, and logwood and fuchsin were found to be the most satisfactory stains for showing the nuclear changes. As a typical example, a specimen of mammary scirrhus after eight days' sterile incubation was described. The nuclei of the epithelioid cells were very granular; the nuclear matrix was either slightly stained or colorless. In some of the nuclei there was a distinct network (nucleo-plasm). There were also large distinct granules or nucleoli; the nuclei had a delicate continuous outline, even when the projections of the contained granules gave them a spinous form. In some cases the granules lay free in the cell-protoplasm, but were still connected with the nucleus by thread-like processes. The granules, which varied in size, were round, oval, or comma-shaped. The corpuscles of the fibrous tissue contained a deeply-stained nucleus, and around it the cell protoplasm formed a hazy zone containing granules, which were also found in the fibrous tissue, thickly and uniformly distributed. These appearances were found in numerous carcinomata and in sarcomata. It could not be positively stated that incubation was necessary for the production of this condition, as somewhat similar granules might sometimes be seen in perfectly fresh sections of carcinomata; in some cases the granules in the epithelial cells appeared to have escaped, collecting in the fibrous tissue. The appearances presented by the elements of normal tissue, either before or after incubation, were entirely distinct. The nuclei at first became granular but well-defined, and presented none of the budlike processes above described as granules. After prolonged incubation the nuclei ceased to stain, and became indistinguishable from the cell protoplasm. In the testicle alone did a process occur at all comparable to that observed in cancers; the liberation of spermatozoa was normally accompanied by a disintegration of the nuclei of the epithelium of the nutritive layer; no budding from the nuclei, however, had been observed. Although no explanation could as yet be afforded of the import of the peculiar appearances observed in cancer, it seemed probable that they had an intimate bearing on the local and general infective processes. It was thought by no means improbable that these detached buds (granules) might by their dissemination be one means of conveying infection to the lymphatic glands, and, like the spermatozoa which escaped from the spermatoblastic cells of the testicle, be the *semen* by which the growth was called forth in other parts of the body. In a previous communication the authors had compared the process to that known as "rejuvenescence" in certain of the protozoa, and it might be that such nuclear particles were capable of subsequent development into cells or the particles might enter the cells of the organs to which they were carried, and excite in them a tissue process similar to that existing in the primary tumor. If this were so they might be called *cancerozoa*, or the process might be viewed in relation with the symbiosis of fungi and algæ to produce lichen. Sir John Simon, in a private letter, said, "Substitute for alga a bit of normal human body, say a bit of lower lip; substitute for fungus your amœba, or whatever else it may be; the cancer which begins in the lip and spreads in its own type through the body is the lichen of that analogy." Gussenbauer has stated that the secondary infection of lymphatic glands is effected by small granules, presumably derived from the primary tumor, which entered the cells of the glands, and incited them to multiply or to take on the characters of the primary growth.—*Brit. Med. Journ.*, May 19, 1888.

Significance of Fever.

Dr. William H. Welch, in concluding his Cartwright Lectures on the Etiology of Fever, says: "I cannot conclude this course of lectures without saying a word on a subject which must engage the attention of every one who gives much thought to the nature of fever. What is the significance of fever? is a question which thrusts itself upon us no less than it has upon physicians in all ages. Unfortunately, we cannot to-day, any more than could our predecessors, give other than a speculative answer to this question. There have been in all ages enlightened physicians who have held the opinion that fever is a process which aids in the elimination or destruction of injurious substances which gain access to the body. Under the influence of ideas which sought in increased temperature the origin of the grave symptoms of fever, we have in recent times, in great part, lost sight of the doctrine once prevalent, that there may be in fever a conservative element. There is much which speaks in favor of this doctrine. The real enemy in most fevers is the noxious substance which invades the body, and there is nothing to prevent us from believing that fever is a weapon employed by nature to combat the assaults of this enemy. The doctrine of evolution indicates that a process which characterizes the reaction of all warm-blooded animals against the invasion of a host of harmful substances has not been developed to such an extent, and is not retained with such pertinacity, without subserving some useful purpose. This is a point of view from which many pathological processes can be regarded with advantage. Even suppuration, which one does not generally look upon as a beneficent provision, is a most important instrument of nature in forming a barrier against general infection of the body with certain micro-organisms. It is impossible, with our present knowledge, to say in exactly what way fever accomplishes a useful purpose. There are facts which suggest that in some cases of fever the increased temperature, as such, may impair the vitality or check the virulence of pathogenic micro-organisms; but there are many circumstances which make it difficult to suppose that this is the agency by which fever usually exerts a favorable action. The supposition seems to me more probable that the increased oxidation of fever aids in the destruction of injurious substances. According to this view, the fever-producing agents light the fire which consumes them. It is not incompatible with this conception of fever to suppose that the fire may prove injurious also to the patient, and may require the controlling hand of the physician. Time will not permit me to elaborate further the ideas here suggested. In the course of these lectures some facts have been presented, and others might be drawn from clinical and experimental observations, which favor the hypothesis that fever is, in a certain sense, a conservative process. Unproved and intangible as the hypothesis may seem to some, no apology is needed for bringing to your attention a conception of fever in favor of which much can be adduced, and which, if true, is of fundamental importance, both theoretically and practically."—*N. Y. Medical Journal*, April 28, 1888.

The Removal of the Spinal Cord.

In a communication to the *N. Y. Medical Journal*, May 5, 1888, Dr. E. R. Axtell, Resident Physician, Cincinnati Hospital, says: The present method of

removing the cord—the method now almost universally adopted—has been given us by the German medico-legal authorities (see Dr. T. P. Smith's translation of Virchow), and consists briefly of the removal of the cord by opening the vertebral column from its posterior aspect. The advice is as follows :

"The skin and subcutaneous fat are first to be divided exactly over the spinous processes; the muscles are then to be removed from the sides of these latter and from the arches of the vertebræ. * * * Then, by means of a chisel, or a vertebral saw, the spinous processes, together with the adjoining portions of the vertebral arches, are to be detached and removed. The dura mater is now exposed, and, after being examined, it is to be carefully slit open longitudinally. * * * The roots of the nerves are next to be divided on both sides by a longitudinal incision; the lower end of the cord is to be carefully taken out, its anterior connections are next to be gradually separated, and, finally, the superior extremity is to be removed from the occipital foramen." This is all well enough, and some excellent specimens have thus been obtained, but, as a very general rule, the removal of the cord to the majority of pathologists is a herculean effort, and only done under the greatest stimulation.

Every institution will furnish numerous instances in which most interesting cases of spinal-cord trouble have not been examined post-mortem, owing to the inaccessibility of the cord, or where a small portion was made to answer for the entire cord. Thus we are daily losing valuable contributions to the pathology of spinal troubles. If the cord could be removed quickly and easily, an impetus would be given to this study that would be of great good. Our pathology of myelitis, softening, atrophy, sclerosis, ataxia, apoplexy, tumors and palsy might be greatly widened, and with increased knowledge of pathology comes increased knowledge of treatment.

And in what direction can a remedy come? But one way presents itself, and on superficial thought the way looks not difficult. A pathologist sees at every autopsy a small, delicate, white mass of spinal cord, peeping from its long, narrow bed as the higher nervous organs are being removed, and almost involuntarily is tempted to grasp it and seek to draw it out. Yet how futile such an effort would be! Yet does not this instinctive movement suggest a remedy? Could we but separate the spinal cord from its bony attachments—even at the loss of its coverings—would not much be gained? Once separating it, it could readily be withdrawn and examined. But how could such a separation be effected?

The spinal canal is long, and in its course is many times curved. At various sections it has different shapes and different diameters. And this canal contains the cord. This is a flattened cylinder about sixteen inches in length, and extends in the adult to the lower border of the first lumbar vertebra. In its course it presents two enlargements, the cervical and the lumbar. Yet "it does not *nearly* fill the canal in which it is contained, its investing membranes being separated from the surrounding walls by areolar tissue and a plexus of veins" ("Gray," 10th ed., page 612).

Now, is not the way clear? Is it not possible to divide the cord from its attachments without injuring the cord in the least? Can not a thin, hollow, vertebrated cylinder be made to do duty? The brain having been removed, the opening of the spinal canal is at hand. Now, with such a cylinder, with sharp

biting saw-teeth on the first segment, is it not plausible that it could be made to embrace the cord and to divide its attachments on slight rotation? The entire cord could be rendered "taut" by slight extension on the projecting portion. One by one the spinal nerves could be divided—the cylinder being gradually pushed downward—conforming to the curves of the canal just as Sayre's vertebrated probe conforms to the curves of a sinus. When the *filum terminale* had been reached, some slight mechanism might be introduced to cut the nerves here transversely, or they might be divided by a knife introduced between the vertebræ, the spinous processes of which in this region are horizontal in direction. The entire cord now rests in the cylinder, and upon withdrawing this, the whole and perfect cord is before us, having been neither pressed upon nor bent in its extraction. And not alone the cord need be present, but, by having a cylinder of good size, the membranes, especially the arachnoid and pia mater, may be left intact. Thus could the cord be extracted most readily and without difficulty. The need of such a method is most obvious.

Note on Silver-Staining.

In a note on Silver-staining (Argyria), in the *Dublin Journal of Medical Science*, April 2, 1888, Dr. A. W. Foot, Senior Physician to the Meath Hospital, says that it will be within the knowledge of the members of the Profession that some correspondence has taken place in the medical journals of late on the subject of "discoloration of the skin by nitrate of silver." The gist of this discussion is merely as to the place of entrance of the silver into the body, for that discoloration of the skin was likely to follow the internal use of nitrate of silver has been known to all since the subject was brought before the Medico-Chirurgical Society of London, by Dr. I. A. Albers, of Bremen, in a paper read before that body, November 14, 1815, in which Albers reported a case of his own along with three others communicated to him by Dr. Schleiden, of Hamburg.

The point under discussion at present, he says, is the occurrence of staining after the local application of nitrate of silver to the throat. On the 22d of October last, Dr. Barclay Baron reported a case of discoloration of the skin by nitrate of silver used for swabbing the throat. On November 5, Dr. Wilks wrote that he had met with a similar case in a middle-aged woman who had never taken any nitrate of silver internally, but had been in the habit of applying it to her throat every day for two years. In the the same number of the journal Dr. Duffey drew attention to a report of two similar cases given in the *Practitioner* in 1875, (Vol. XIV, p. 462).

It is in reference to this subject, he says, that he now offers a note on the occurrence of argyria or silver-staining from the long-continued employment of nitrate of silver to the throat. The skin of the entire body was discolored, but that of the uncovered parts, such as the face and hands, was most so. The nails and the mucous membranes of the mouth and eyes were stained. The drawing exhibited was made twelve years ago. The man is at present alive and well, and his condition is unchanged, except that he is not quite as dark as he was twelve years ago. At the time the drawing was made (1875), Dr. Foot says the man had excellent general health, and was about his business as a working jeweler every day. His urine was examined at that time for what is called "argentine

albuminuria," and no evidence of it was found. On the back of the drawing the notes written at the time were that thirteen or fourteen years previously he was under treatment in the Meath Hospital (under the care of the late Mr. Josiah Smyly) for "lumps in the throat." He had derived so much benefit from the use of solid nitrate of silver, locally applied, that after his discharge he provided himself with sticks of lunar caustic, and continued to apply them diligently for about eight years, when he desisted owing to the alteration in the color of his skin becoming apparent. His appearance was peculiar and so remarkable that one day in the town of Waterford some children took fright at him and ran away, crying out that he was the devil.

There can be little doubt, Dr. Foot says, that in this case much of the nitrate of silver applied to the throat was swallowed, and so the case will come under the category of those who have taken silver nitrate internally for long periods because of chronic affections of the nervous system, such as tabes or epilepsy. Neumann has reported the case of a physician affected with ulcer of the stomach who, for several months, injected two or three times daily into his stomach by means of the œsophageal sound a solution containing about 22 grains of silver nitrate. After about twelve doses the first indications are said to have appeared. This, Dr. Foot remarks, appears to have been an extremely large dose. It is remarkable that the attempts which have been repeatedly made to produce argyria artificially in animals by long continued feeding with silver nitrate have hitherto been always attended with negative results as regards the skin.

Microscopic examination of the human skin shows that, while the epithelial portions, the rete mucosum, and the glandular epithelium, are altogether free from depositions of silver, there are throughout the connective tissue portions of the skin accumulations of the finest granules of silver. These deposits of silver are most dense immediately beneath the epidermis in the uppermost layers of the papillary body and in the membranæ propriæ of the sweat-glands. It has been long observed that in these cases of silver-staining blisters rise white as they do in negroes, the dark granules of reduced silver lying chiefly in the cutis.

As to the chemistry of the process, he says Reimer's views are considered most probable. The latter assumes that the silver, having been reduced in the intestine, and being in a state of the finest subdivision, is taken up by the chyle-vessels, transported into the blood-current, and then deposited into the various organs. There is a difficulty in reconciling this view with the indisputable fact of the influence of light on the staining of uncovered parts, for the color of the reduced silver can no longer be altered in any way by the light. Were it found in the tissues as the insoluble chloride the pigmentation would be very intelligible, as the white chloride is very sensitive to light, especially in the presence of organic matter, and it is upon this fact the phenomena of photography depend. *Post-mortem* examinations show that the discoloration is not limited to the skin and superficial mucous membranes, but may extend to the liver, spleen, kidneys, and intestinal mucous membrane. In the internal organs the deposited silver is chiefly in the walls of the smaller arteries. In the kidney the silver particles lie principally in the medullary zone, and give it a dark gray tint. The central nervous system appears to be exempt from depositions of silver granules.

In the present state of our knowledge argyria must be considered an incur-

able affection. Neumann alone reports that in a case under his observation, according to the statement of the patient, the intensity of the stain decreased in the course of several years. Duhring refers to two cases, reported by Dr. L. P. Yandell in the *American Practitioner* for 1872, in which iodide of potassium together with mercurial vapour baths were successfully employed. The patients were syphilitic, and took from ten to sixty-grain does thrice daily for a period of months. In both cases the fading of the discolored skin was gradual; in one a faint trace remained, in the other the cure was complete. In the present case of which the author submits the facts in this paper, the course adopted was to give potassium iodide and sodium hyposulphite in alternate weeks—one week the iodide in ten-grain doses thrice daily, the next week the hyposulphite in twenty-grain doses as often. The object of this process was an attempt to convert the deposited silver into an iodide which is readily soluble in an alkaline hyposulphite, but it is very doubtful if these changes can be effected in relation to the living body with the safety and certainty they can in the laboratory.

The man considered that his color improved under this treatment, but as he would attend only as an out-patient, and was often absent in the country for considerable periods, the method did not receive a fair and patient trial.

As the discoloration of the skin after its prolonged use is not the only disadvantage of silver nitrate, Dr. Foot says he was glad of late to come across Curci's researches on the biological action of silver. In his communication thereon he recommends the double hyposulphite of sodium and silver, this salt being soluble, non-irritant, not coagulating albuminoids, and readily absorbable by the subcutaneous connective tissue. It is also very diffusible, and promptly absorbed by the mucous membrane. He claims for it that its action on the nervous system is surely and quickly obtained, and the risk of argyria is avoided. Dr. Foot has had the double hyposulphite made and given it repeatedly in half and three-quarter grain doses subcutaneously, and in half-grain doses by the mouth three times a day. Its taste is sweet, and it should be given fasting or hypodermically. In conclusion the author says: "My experience with the double hyposulphite of sodium and silver has been limited, and I am not yet prepared to endorse all that has been said in its favor. Curci recommends that the internal use of the nitrate should be abandoned, since in contact with the mucous membrane it is rapidly altered, and may cause argyria even without its action upon the nervous system having ever been obtained."

Transplantation of Nerve from the Rabbit to Man.

Dr. Gersung, of Vienna, assistant to Professor Billroth, has recently performed a novel and interesting operation—the transplantation of nerve from the rabbit to man. The case has not hitherto been published in any medical journal, but owing to its general interest the bare fact has found its way into the lay newspapers. Our Vienna correspondent has received from Dr. Gersung a verbal account of the salient points of this most remarkable operation, which has so far been conspicuously successful. The patient is Professor von Fleischl, the distinguished occupant of the chair of physiology in the University of Vienna; sixteen years ago he accidentally wounded himself while conducting a *post-mortem* examination, and severe inflammation of the whole right upper limb ensued.

During the course of the disease the terminal phalanx of the thumb became gangrenous. The stump thus left was painful, and later on re-amputation was performed. This was followed by the formation of neuromata. For this condition the branches of the median nerve which supply the thumb were first resected, together with the terminal neuromata, and at a later period, when new neuromata began to develop, the central parts of the same nerves, together with the branches of the radial nerve which supply the thumb, were resected. Fresh neuromata now developed on the branches of the median nerve, which were treated, without any success whatever, by the injection of hyperosmic acid and electrolysis. Two years ago the neuromata were resected again, and the resection of the nerves was continued as far as the "ligamentum carpi volare;" on this occasion, the branches which supply the radial and the ulnar sides of the index, as well as the radial side of the middle finger, were resected to a great extent. The forefinger now became anæsthetic, except the dorsal aspect of its first phalanx, which, as is known, is supplied by the radial nerve; in the same way the whole radial side of the middle finger became anæsthetic. The pain, however, again recurred, as after the previous operations, and during the course of the second week after the last operation, the patient became aware that a fresh neuroma was developing. The suffering finally became so severe that the patient wished to undergo another operation, in order to procure, at least, temporary relief. Accordingly the following operation was performed: On March 4, the patient was put under the influence of chloroform, and the neuroma, which was situated behind the volar carpal ligament, was excised, the nerve being cut through behind the neuroma. The peripheral nerve stumps of the two digital branches above mentioned were then sought for. A rabbit was now killed, and as long a piece as possible of the sciatic nerve of the animal, with the two branches into which it becomes divided, was dissected from it (the animal still presenting voluntary contractions). The sciatic nerve was afterwards inserted into the space between the central stump of the median nerve and its digital branches; the central end of the sciatic nerve was sutured to the connective tissue which covered the median nerve, and the two branches were sutured to the digital branches of the median nerve; the portion of nerve, measuring about six centimetres, which was deficient was thus made up. After the operation severe pain persisted for some hours, but then entirely subsided. Healing took place by first intention. As two months have now elapsed since the date of operation and the pain has not returned, it may be hoped that the favorable result will become a permanent one. Sensibility, moreover, is becoming re-established in the part.—*British Medical Journal*, May 19, 1888.

Testing the Competency of the Valves of the Heart with Air.

Dr. D. J. Hamilton, Professor of Pathology at the University of Aberdeen, in a communication to the *British Med. Journal*, April 28, 1888, says that the ordinary method of testing the competency of the valves of the heart with water is admittedly faulty in many respects. It can be applied only to the aortic and pulmonary artery orifices, and even with them the pressure of 1½ to 2 inches of water, which alone can be retained in the attached portions of the vessels, does

not represent anything like the pressure to which they are naturally subjected. Hence a valve which during life might have been sufficiently incompetent to give rise to a murmur, may be found after death to be perfectly competent. The water method is also defective from the fact that the cusps of the valve are not seen in motion, so that the mechanism by which a murmur may have been elicited is incapable of being demonstrated in the *post-mortem* room. We possess, moreover, he says, no exact method of gauging the amount of incompetency of the mitral and tricuspid, nor of ascertaining when they are competent.

For some time past he has been in the habit of demonstrating to his class the natural action of the valves by driving air into them instead of water, and also of reproducing the murmurs heard in diseases of the valves by several simple modifications of the same method. He gives the following as his method of procedure: The ascending aorta with the attached valve is cut off from the heart of an ox. A brass tube attached to a bellows is introduced into the distal end of the aorta. The aorta is now fixed in as nearly as possible its natural position, and air is driven in from the bellows with a sharp click, so as to imitate as closely as may be the effect of the arterial recoil. With each inflation of the bellows the cusps are retracted, to be closed again as soon as the air is expelled; and so perfect is their adaptation, even after death, that not only do they prove perfectly competent when the heart is healthy, but the sharp sound elicited bears a remarkable resemblance to the second sound of the heart. The valve can be turned up in any position, so as to be made readily visible to a whole class.

The same means may, he says, be employed to display the action of the pulmonary artery valve. In the case of the mitral and tricuspid, he advises that the respective auricles should be cut away close down to the orifices. The nozzle is pushed down through the aorta or pulmonary artery, as the case may be, past the valve, so that it enters well into the cavity of the ventricle. It is tied into the vessel so as to prevent regurgitation of the air.

It occurred to him that the same means might be utilized for testing the competency of the valves in the *post-mortem* room; and, having employed the method lately in a number of cases, he finds that it works admirably. It can be applied almost as quickly as the water test, and has the great advantage of being available for all the orifices. The following is his method of procedure: An opening is made into the left auricle, so as to expose the auricular aspect of the mitral. Any *post-mortem* clots which may be adhering to the edge of the valve are removed with care, so as not to disturb the position of the cusps. An aperture sufficiently large to admit the brass nozzle is next made into the apex of the left ventricle in the line of incision which will afterwards be required to lay the ventricle open. The nozzle is then introduced, and air driven in by the bellows in the manner before described. The heart should meanwhile be suspended by the cut edges of the auricle. A series of hooks fixed on supports is useful for this purpose, the supports being movable so as to allow of the proper apposition of the cusps. The slightest incompetency can be detected quite as much, he says, by the irregular manner in which the cusps mutually adjust themselves, as by the escape of air between them.

He employs the same method of demonstration in the case of the tricuspid, and, after its condition has been ascertained, he carries the incision in the left

ventricle up as close as possible to the root of the aorta, without, of course, injuring the aortic ring. The heart is now suspended, as before, by the cut edges of the ventricle, and the nozzle is tied into the distal end of the aorta. The aorta should either be cut off, he says, at the termination of the ascending part of the arch, or be laid open up to this point. The nozzle, both in the case of the mitral and in that of the aortic, may be simply held in with the hand, or it may be tied in; or, what he thinks is even preferable, a simple clamp apparatus may be attached to its extremity, which seizes the cut edge of the vessel or cavity into which the nozzle is introduced, and holds it air-tight, or nearly so. In watching the action of the valve, the ventricular aspect should be turned upwards, the air being driven in from below.

The pulmonary artery orifice is next tested in the same manner.

In a perfectly healthy heart, he says in conclusion, it will be found that the aortic, mitral, and pulmonary artery valves are quite competent, but, so far as his present experience goes, he has never met with a tricuspid in man which will stand the test. There is always a slight leakage, even when the cusps are perfectly free to move.

Recent Progress in Anatomy.

Dr. Thomas Dwight, Professor of Anatomy in the Medical Department of Harvard University, gives the following review of recent progress in anatomy in the *Boston Medical and Surgical Journal*, May 3, 1888:

The Cæcum.—Treve's excellent lectures on the Intestines, published in 1885, contained, we believe, the first statement written in English that the cæcum is completely covered by peritoneum. It must not be forgotten, however, that new as this appeared to English and French readers, the Germans had known it long ago. It is surprising that if there is a substantial regularity of arrangement, such absolutely opposite views should be held. Treves declares that he has never seen a cæcum with its posterior wall uncovered by peritoneum. M. Tuffier[1] has written a very careful paper on the anatomy, physiology and pathology of the cæcum, which is in the main, though not wholly, confirmatory of Treve's views. In a disputed question of this kind it is essential to define the limit of the cæcum, and we may accept Tuffier's statement that it coincides with a plane immediately above the ileo-cæcal valve. If a window is made in a dried and distended cæcum, the upper limit is clear enough, but we must own that it is not easy to recognize it when the intestines are unopened and *in situ*, although Tuffier says it is indicated by *une forte bandelette annalaire du colon.* It must be admitted that if, as a ready method, we draw a line across the colon from opposite the highest point of junction of the ileum and call all below it cæcum, we give that part of the intestine all and more than belongs to it. It would be more just, but more difficult, to draw the line from a point at the middle of the end of the ileum. M. Tuffier describes the lymphatic glands of the immediate neighborhood, which are so important that we give his description literally translated:

"The lymphatics of the anterior region represented in Henle, injected by M. Farabeuf, (specimen in the Musée Orfila) follow the anterior ileo-cæcal artery

[1] Archives Générales de Médecine, Juin, 1887.

to empty into two glands, which I have constantly found in the superior ileo-cæcal fold, and which are very distinct in the child. The posterior lymphatic glands do not appear to me to have been figured nor well described by the authors. They are, however, constant and very well developed. To see these glands well it is enough to turn the cæcum over on to its anterior surface and examine the posterior one. They are then seen through the transparent peritoneum. They lie on the posterior and inner surface of the cæcum, of which they form a part. They are covered by the peritoneum, which at this level binds them to the walls of the intestine itself, and separates them completely from the iliac fossa. In general they form a group of from three to six, but one or two stray ones may be found in the neighborhood of this group."

The importance of this group is hardly likely to be overestimated. We must refer the reader to Tuffier's paper for the account of the fossæ and peritoneal folds. Suffice it to say that, following Treves' lead, he has done much original work. As to the peritoneal covering, he found in 120 subjects, adults, children and fœtuses, that in 9 only the superior posterior third of the cæcum was uncovered by peritoneum. These nine were all adults or old people. The height at which the peritoneum leaves the posterior surface of the gut varies greatly. In most cases it is a finger's breadth above the ileo-cæcal opening. Tuffier has twice seen the entire ascending colon completely covered and as free as the cæcum.

The writer of this report would state in this connection that, having given special attention to this point of anatomy, he is convinced that the German teaching which Treves has followed—namely, that the cæcum has a complete peritoneal covering—is undoubtedly correct in the great majority of cases. Treves goes too far, however, in looking on it as probably constant, for exceptions sometimes occur. The writer, moreover, in examining the bodies of thirteen infants who died at, or shortly after birth, has found in two cases the posterior surface, and in one case the upper third of this surface, without peritoneal covering. Our author calls attention to another point, which we believe has been but little noticed, namely, the degree of firmness with which the peritoneum is attached to the other coats of the intestine. In the colon the attachment is lax, so that the serous layers can be moved, but in most parts of the cæcum the layers are firmly joined so that the peritoneum cannot be peeled off without tearing. It is loosely attached, however, in the upper posterior third.

Suspensory Ligaments of the Thyroid Gland.[1]—Mr. James Berry made a communication on this subject at the July meeting of the Anatomical Society of Great Britain and Ireland. These ligaments, blending with the capsule of the thyroid, attach it to the cricoid on each side, forming a kind of sling. Though strong, they have no very precise borders, blending, as they do, with the fascia on either side. When the gland is enlarged these ligaments become strong bands, mooring it to the larynx. Mr. Berry looks on them as of much surgical importance, as they are obstacles to the removal of the thyroid, and it is to be noted that they lie directly below the recurrent laryngeal nerves.

Valves in the Gastric and Omental Veins.[2]—It is taught as established

[1] Journal of Anatomy and Physiology, Vol. XXII, October, 1887.

[2] Hochstetter. Archiv für Anat. und Physiologie. Anatomische Abtheilung, 1887.

that there are no valves in the portal system of man. Sappey, to be sure, found some in the very small veins in the falciform ligament of the liver that connect the portal system with the veins of the abdominal walls, and Bauer has described them in the short veins of the stomach, but Cruveilhier, who quotes him, failed to confirm his statement. With these exceptions, nothing, so far as we know, has been written on the subject. Dr. Hochstetter recently came across valves on injecting the portal system of the body of a child a few months old, and was led to make many examinations. He found that in the infant the tributaries of the right and left gastro-epiploic veins, which form an arch along the greater curvature of the stomach, both those from the stomach and from the omentum, had sufficient valves at or near their points of entrance. The veins opening into the coronary vein, which runs along the lesser curvature of the stomach, are occasionally found with valves, but without regularity, excepting in the case of the branch (and its tributaries) nearest the œsophagus. The veins of the omentum, however, have valves not only at their entrance into the gastro-epiploic veins, but throughout their course, wherever a smaller branch opens into a larger. These valves are as well formed as those in other veins, but are delicate and tear comparatively easily. With increasing age they become insufficient: first, the gastric branches of the right gastro-epiploic near the pylorus; next, those emptying into the left vein of the same name; then those of the short gastric veins. By the twentieth year, apparently, there remain no valves in working order along the greater curvature. The valves of the highest branch of the coronary vein endure comparatively long, and those of the omentum longer still. Hochstetter has found perfect valves in the omentum in old persons.

It was known that in some mammals valves are present in the portal system, but Hochstetter has added much to our knowledge of this subject. He has shown that valves are to be found in the gastric and splenic parts of the portal system in many mammals, but that their importance varies greatly. He found them in some carnivora, especially the dog and cat, to have a real, and apparently permanent influence on the circulation; in some orders he found that as in man, they have only a temporary function, and again, sometimes, as in the rabbit, there are merely traces of valves. They may, therefore, in some cases be considered rudimentary organs.

Another paper by Dr. Karl Klotz[1] shows that many valves become useless in the course of life. He examined the long saphenous vein and its tributaries in seven adults, two new born infants and one fœtus. The number of observations is extremely small, but they show tolerably well the atrophy of the valves which is, we think, the most important point of the paper. Thus in the two infants and the fœtus all the valves were in good working order, but in a man of twenty-five, 17 per cent. were impaired. In two others of about thirty, and in one of forty-two, the proportion was about the same, but in a man of forty-eight it had increased to 29 per cent., in one of fifty-four to 40 per cent., and finally in an old man of seventy, to 81 per cent. That many valves should become useless in old age is not surprising, but what is remarkable is the fact that about one-sixth should be impaired before twenty-five.

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[1] Same Journal.

Veins on the Pharynx.—MESSRS. BIMAR and LAPEYRE [1] describe a remarkable submucous venous plexus in the lower part of the pharynx at its posterior aspect. It is found at all ages and is not more developed in the old than in the young. It communicates with the superficial pharyngeal plexus by several systems of veins that perforate the inferior constrictor. Of these the following are nearly constant: (1) A superior and posterior one near the median line. (2) One running upward and outward parallel to the posterior border of the thyroid cartilage and forming a part of the origin of the pharyngeal vein. (3) One passing outward towards the thyroid body, and emptying into branches of the superior thyroid vein.

The interarticular fibro-cartilage of the sterno-clavicular joint.—M. POIRIER,[2] having met three times with absence of the fibro-cartilage, has undertaken the study of its use and significance. He regards the usual view that it practically establishes a correspondence between two surfaces that do not fit as erroneous. He maintains that, though the articular surfaces of the sternum and clavicle vary, still they do correspond. Having dissected a hundred joints, he finds that the articular surface of the clavicle which encroaches on the lower surface of the bone is distinctly convex vertically, and slightly concave from before backwards, and that the sterno-clavicular joint is distinctly concave in the former direction, and very slightly convex in the latter. He then points out that the interarticular cartilage is very variable in shape, and concludes that it is present merely as a rudimentary structure, the representative of the interclavicle. We are not inclined to dispute the homology, but we think Poirier in error not to recognize that the cartilage adds very much to the security of a very important joint, the only one, in fact, between the trunk and the upper extremity.

Anastomoses of the nerves of the arm and hand.—M. HENRI HARTMANN,[3] at the beginning of an important communication to the Société Anatomique, alluded to a previous one, in which he had shown that the collateral nerves of the fingers were very frequently perforated in the palm of the hand by the digital arteries. This occurred in two ways: either the vessel passed through a small opening, a "button-hole" in the nerve; or else the fibres of the nerve, separating into different bundles, left a long elliptical space, through which the artery made its way. It is a rather curious fact that the branches of the median nerve should show the button-hole, and those of the ulnar the elliptical opening. It appears that it was suggested that M. Hartmann had struck a series of uncommon cases, to which he says that he had found these appearances in sixteen hands out of twenty-four, and that having continued his investigations, he has found in twenty-nine of forty-five hands either the button-hole or the ellipse on one or the other of the digital nerves. He has noticed several times an arrangement in which the opening was made not by a splitting of a nerve, but from fibres from the next branch of the parent nerve rejoining the nerve in question. If the reader should not find this clear let him imagine a Y, the arms of which represent two digital nerves. Let him then imagine that certain fibres begin by following one arm for a short distance, and then leave it to join the other, thus forming an opening bounded above by the bifurcation. Hartmann points out that in this case no

[1] Comptes Rendus. Tome cv, No. 18, 1887.
[2] *Bulletins de la Societe Anatomique de Paris*, 1888. Janvier.
[3] *Bulletins de la Societe Anatomique de Paris*, 1888. Fevrier.

dissection is necessary to separate the fibres, which only lie against the bundle; they appear to have joined inadvertently, without really mingling with them. He then goes on to describe analogous cases in the large nerves of the arm, in which the fibres of a certain nerve apparently join another and then leave it. This appears to occur most frequently between the median and the external cutaneous, the fibres coming sometimes from one, sometimes from the other. We should say that more than twenty years ago a branch of the musculo-spiral was described by Krause, running along with the ulnar, and leaving it near the elbow. Hartmann describes also long ellipses made by fibres rejoining their own nerve after a long course.

The special importance of these observations lies in their bearing on certain clinical facts which are hardly to be reconciled with the teachings of anatomy and physiology. We refer to the well-known fact that the paralyses of motion and sensation after section of a nerve do not always correspond with the area of its distribution, and that sometimes the discrepancy is very striking. Richet reported an extraordinary case,[1] in which, after section of the median, insensibility was unchanged, except that it was diminished on the palmar surface of the second and third phalanges of the index, and there are other cases in which motion has persisted. We must admit that we find it difficult to account for extraordinary cases by the theory that when a certain nerve is cut, and but a part of the usual effect follows, this is due to the fact that many of its fibres have taken another course; but this theory will do well enough for cases where the discrepancy between the actual and the expected result is not great.

The Human Ovum.

Our knowledge of the internal structure of the human ovum has been hitherto very incomplete, and, strange to say, there has been very little work of any account in this direction of late years. In the *Berichte der K. K. Preus. Akad.*, 1887, pp. 759–60, there is, however, a paper by Dr. W. NAGLE, which goes far toward removing many of these obscurities. The material studied by him was taken from the healthy portions of ovaries removed in the course of his own surgical practice, and that of others. In some cases the ovaries were sectioned *in situ*, and in others the follicles were isolated and thus examined. The following are the principle points of the paper:

The *zona pellucida* is very distinct and is separated from the vitellus by a very thin stratum of clear fluid. This stratum is what is called the perivitelline space. It surrounds a clear stratum—the cortical layer of the vitellus. Within and next the cortical layer is a somewhat thicker stratum of exceedingly finely granulated matter—the *zona protoplasmica.* Within this again is the deutoplasmic portion, full of globules, which are more numerous than the analogous globules of the ova of domestic animals, and not quite so refractive as the latter. The nucleus is within the zona protoplasmica, eccentrically located, round in shape, quite clear and double contoured. It possesses a distinct nuclear reticulum. The nucleole shows amœboid movements.

In ripe ova the epithelial corona was always quite distinct and well developed. The diameter of the ova varied between 124 and 128 mikrons, the nucleus

[1] *Gazette des Hopotaux*, 1867.

measuring from 18 to 20 mikrons. The width of the various zona varied at different points—they were not concentric.

In the ovaries of infants newly born, the observations of Waldeyer-Slavjanski were confirmed as to the existence of large follicles in addition to the normal primordial follicles; but the author draws a different conclusion from those hitherto advanced as regards these larger follicles. On section they reveal normal ova, from which he concludes that these larger follicles by no means indicate incipient cyst formations.

In the progress of development the protoplasm and nucleus increase in size, the follicular cells increase in number, the formation of the deutoplasma occurs and the nucleus is pushed from its centric location to one side, and lastly, the zona pellucida appears.—*St. Louis Med. and Surg. Journal*, May, 1888.

Metabolism in Typhoid Fever in Childhood.

The urine gives, perhaps, the best indications of the tissue changes occurring in typhoid fever, as in any other disease. JACUBOWITSCH (*Archiv für Kinderheilkunde*, Bd. IX., Heft I.) has made an important contribution to our knowledge of the metabolic changes in typhoid fever in children. He insists on the necessity for knowing the actual quantity of nitrogenous material daily ingested, and also the quantity of urine and other excreta, together with the daily loss of carbonic acid and water. There is a considerable diminution in the quantity of urine passed during the pyrexial period, but no definite correspondence was noted between the elevation of temperature and the quantity of the wine. At the end of the first week there was a loss which varied from two to seven fluid ounces, and even to seventeen fluid ounces in some cases, the quantity voided being only one-half the normal. These diminutions were rather increased during the second week, whereas at the end of the third week the quantity tended again to rise, and in some of the cases was twice the amount of the second week. During the fourth week the normal was still not reached. As a rule, the color of the urine was deeper red the less the quantity passed; but this did not always obtain, for in some instances the color was nearly natural. The reaction was usually acid; sometimes, however, only slightly so. As was to be expected, the density of the urine was inversely proportional to the quantity. Gerhardt states that albuminuria results from variations in blood-pressure due to the pyrexia, but Jacubowitsch does not substantiate this, for he detected no albumin in the urine in his cases at any period of the disease. The estimations of the urea discharged during the disease are very interesting, and appear to be ranged in two classes. In one the discharge of urea was large during the first week, but then gradually lessened as the disease progressed; in the other classes the discharge of urea gradually augmented with the continuance of the fever, and continued to rise until the fever ended. The uric acid discharged was found to correspond with the elevation of temperature, and to be greater during the pyrexia of the first period than during the later stages of the disease. A diminished excretion of chlorides was noted all through the morbid process. The excretion of phosphates and sulphates was also grouped into two classes like the urea; in one the quantity being increased at first, but then lessening by degrees, and *vice versâ*. Jacubowitsch believes that the activity of the poison in the blood has more influence in altering the urine than the fever or the febrile accompaniments have.—*Lancet*, April 21, 1888.

II. MATERIA MEDICA AND THERAPEUTICS.

Poisoning with Iodine.

The Paris correspondent of the *New Orleans Medical and Surgical Journal*, May, 1888, says: According to MR. DURET, intoxication by iodine is manifested in three distinct forms: The eruptive; the cerebral, or delirious; the syncopal, or hypothermic. The eruptive form is the most frequent. It is characterized by a rubeolic eruption appearing on the different parts of the body, and far removed from the point of application. The poisonous and iodised principles are absorbed by the body, and this eruption is probably caused by the eliminating process carried on through the glands of the skin.

The second form is characterised by epileptic symptoms, or by fits of sleeplessness accompanied with delirium.

The third form is more serious. The absorption of the iodine is followed by an exaggerated increase or decrease of the temperature, sometimes falling as low as 94.3° F. These symptoms cease as soon as the iodine is no longer given. Thus if the use of iodine is valuable on account of its antiseptic properties, still it must be employed with discretion; in various cases it has all the inconveniences of sluggish medicines, and provokes lymphangitis and phlegmon. M. Duret has twice observed inflammation produced by its use in wounds on the hands and fingers. The inflammation ceased when the use of iodine was discontinued.

Permanganate of Potash in Diphtheria.

In a communication in the *Brooklyn Medical Journal*, May, 1888, DR. L. D. MASON, says that a solution of permanganate of potash, used in the form of a spray through the atomizer, has given him more satisfaction and better results than any other drug so used. A stock solution is prepared of potassium permanganate, ℥ij to distilled water f℥iij, or grs. v to f℥j; one fluid drachm of the solution is added to about f℥jss or f℥ij of water, the average capacity of the atomizer bottle. It is then ready for use as a spray, in the manner already indicated. The first notable effect is the almost immediate arrest of the fetor exhaled by the patient; and when once this is corrected and the disinfection properly kept up, it will not recur during the treatment. By this means, he says, we rapidly simplify and reduce to an innocuous product the diphtheritic exudate; the self-poisoning that has been in progress is arrested or modified. The danger of the patient to himself, if we can so express it, and to others also, is averted, a downward tendency is arrested, and the chances of recovery greatly enhanced.

An occasional mouth-wash or gargle can, he says, be used between the spraying, if not contra-indicated. If used, it should be prepared with hot water; a weaker solution of potassium permanganate will answer. Fluid nourishment, taken hot if possible, will have a good local effect. All cloths, etc., on which

secretions are caught, should be frequently burned, their places being supplied by fresh, clean pieces. Old and small pieces of linen are preferable to larger cloths or handkerchiefs. The hands and face of the patient should be kept clean, using bay rum or alcohol and water. In a word, he advises that a perfect antiseptic condition of the patient and his surroundings should be secured and maintained. His experience with potassium permanganate was, he says, first a surgical one, as a deodorizer and mild stimulant in the cleansing of foul ulcers and sloughing tissues; secondly, in puerperal septicæmia, as an intrauterine douche; in scarlatina anginosa, with putrid sore throat, and the so-called "snotty nose" complication and secondary glandular infiltration; and, finally, in diphtheria; and in none of these conditions has it disappointed him as to its antibromic, and antiseptic properties. Used in the form of a spray he regards it as perfectly safe: "We can use it freely. We will not poison our patient. We cannot so confidently speak of the possible effects of other drugs used for purposes of disinfection; indeed poisonous, if not fatal, effects have been traced to some that have been so used." He advises that the use of the spray should be continued until the last vestige of the diphtheritic exudate has dissappeared. The frequency of its use will depend on the amount of exudation present and the stage of the disease. As a rule, the absolute control of the fetor is the best guide.

Is Petroleum a Poison.

Dr. Lewin, who is known from his publications concerning erythrophlœine, discusses this question in *Virchow's Archiv.* After referring to his researches, he states that petroleum varies very much in composition, and that this difference is an important factor in the effect of the liquid. He also remarks that the elastic meaning of the word "poison" must be borne in mind; one party postulating the supervention of death as an essential concomitant of real poisoning, while another considers any disturbance of normal health sufficient to justify the use of the expression. Lewin found seventeen cases in literature referring to the ingestion of petroleum, many of which were instances in which the liquid was mistakingly swallowed for brandy by inebriates, who were under the impression, until (in some cases) more than three ounces had been taken, that they were drinking spirit. Others had resorted to it with suicidal intent, and in these cases it had sometimes been taken by the pint. Two patients imbibed from six to twelve ounces without any serious effect at all. It has been alleged that the urine of a person who has swallowed petroleum has the characteristic odor of the substance, and some have affirmed that where a large quantity is introduced into the system it forms a supernatant layer upon the surface of the discharged excretion. Lewin specially directed his attention to these alleged phenomena, but in his researches on animals he was never able to detect any smell of the petroleum nor any of the compound unchanged. Lewin's conclusions are that the effect produced by the internal administration of petroleum is stronger in proportion as the liquid is impure, and that it may be considered as a kind of poison, using the word in a wide sense. He considers that the influence of petroleum vapor is only toxic in very unfavorable conditions and in cases of individual idiosyncrasy. Researches conducted directly in America among workers in petroleum districts who were constantly under its influence showed that it favored the development

of eczematous ulcers, which invaded every part of the body. The heavy oils appeared to be more dangerous than the light, and it was further intimated that those used for illumination are always of the latter and safer class.—*Chemist and Druggist*, May 5, 1888.

Chloroform-Water as an Antiseptic.

Professor E. Salkowski has an article on this subject in the current issue of the *Deutsche medicinische Wochenschrift*. He has used chloroform for some years to preserve urine from decomposition (a few drops, added to a specimen, preserves its acid reaction apparently for any length of time), and has lately examined the action of chloroform-water upon former ferments, and on some pathogenic bacteria. Chloroform, well shaken up with water, in the proportion of 1 to 200, dissolves perfectly at the ordinary temperature; and it was found that such a solution prevents the occurrence of all fermentations which are dependent on the vitality of micro-organisms; for example, alcoholic fermentation, ammoniacal urine fermentation, the fermentative decomposition of hippuric acid, lactic acid fermentation, and the bacterial decomposition of albumen; while it has no influence upon the unorganized soluble ferments (enzymes), and therefore does not affect the action of ptyalin, pepsin, trypsin, invertin, diastase, etc. The latter fact was known already. Of course, in this use of chloroform, care must be taken that it does not escape by evaporation; the bottle should be well corked or stoppered. Thus used, chloroform is convenient for revealing the presence of minute quantities of ferments, the actions of which are only developed after some months; for the observation may be continued as long as desirable, without the intervention of any micro-organisms, and chloroform, while it can be removed from a liquid when desirable, does not injure the nutrient substratum. This is well shown in milk shaken up with a little chloroform and kept in a closed vessel. After some months the casein and fat separate, but a clear albuminous fluid remains, just as in sterilized milk. Solutions of cane or grape sugar, shaken up with yeast, do not ferment; but the sugar is inverted by next day, the inverting ferment of yeast being a soluble ferment, and therefore unaffected by chloroform. Albuminous liquids are sterile with chloroform-water, and even meat in small pieces may be thus preserved without essential alteration, though a certain degree of rancidity may be perceived after a time, from the gradual oxidation of fat. But chloroform has a powerful disinfectant and destructive action upon bacteria already present. A putrid meat infusion is rendered sterile by it in a few hours: and the same destructive action is exerted upon the bacillus anthracis (though not on the spore-form), and on the comma bacillus. The chief use of chloroform as a disinfectant will probably lie in the preservation of solutions of the soluble ferments, the action of the latter not being influenced by it; but various other uses suggest themselves, both pharmaceutical and therapeutical. Chloroform-water is well tolerated by the system. In a supplementary note, Professor Salkowsky writes to the effect that most of the ethylic chlorine compounds possess antiseptic properties, and that chloroform, from its superior volatility, is the best as a respiratory antiseptic.—*British Med. Journal*, May 5, 1888.

Ipecacuanha in Diseases of the Throat and Respiratory Organs.

Dr. William Murrell, in concluding a clinical report of cases treated with ipecacuanha spray, (*Medical Press and Circular*, April 25, 1888,) says that most successful results are obtained from the employment of the ipecacuanha spray in cases of chronic bronchitis and bronchial catarrh. In fibroid phthisis there is often a marked improvement, even when no constitutional treatment is adopted. A single inhalation will sometimes restore the voice in cases of hoarseness due to congestion of the vocal cords. It is a matter of little importance whether the spray be given with a hand-ball spray apparatus or with a small steam vaporiser. In either case the spray must be warm and the patient should not go out for some minutes after inhaling. Care should be taken to see that the spray really enters the lungs and is not stopped by the arching of the tongue against the wall of the mouth. The best results are obtained by using the spray for about ten minutes three or four times a day. In the majority of cases of winter cough relief will be obtained in ten days.

Antipyretics in Croupous Pneumonia.

At the meeting of the Clinical Society of the New York Post-Graduate Medical School and Hospital, December 3, 1887, Dr. Porter read a paper on Pneumonia, in which he said, of the use of antipyretics: As the result of the large absorption of effete material we must have a high temperature, (104.5°); this increase in temperature in not a danger, it is the effete material which is dangerous, therefore antipyretics are detrimental unless the effete materials are at the same time eliminated. I think the coal-tar antipyretics reduce temperature by retaining these substances and producing a condition of collapse. Of course some patients are able to withstand the disease and these remedies as well, but that they are harmful I have no doubt. A German physician admits that he has killed several people by treatment with antipyretics, and I have no doubt that the use of these drugs in this city has been fatal in many instances. We must now exclude all those antipyretics which retain the effete material and use only those which help its elimination. To this class belongs salicylic acid.

It has been said that there is a decrease of chlorides in pneumonia. In the first twenty-four hours there is a decrease of chlorides in the urine, but after that we have an increased excretion in the urine unless there is a new increase of inflammation in the lung tissue, then there will be a continued decrease. With this point in mind we can often judge of the course of a pneumonia by the frequent examination of the urine alone in cases where the patient is too weak to bear frequent physical examinations.—*Post-Graduate*, April, 1888.

The Effect of the Bitter Tonics on the Healthy and Diseased Stomach.

There seems to be a fashion in the investigation of scientific subjects as well as in lighter matters. Just now diseases of the stomach, intestines and organs of digestion seem to be occupying much attention in Germany and France, and the result of their work cannot fail to have an influence on this country. America

is said to be the land of the free and the dyspeptic; and whether this be true or not, the subject of the treatment of dyspepsia is always worth considering if a new light can be thrown on its treatment. There is probably no more confusion in the treatment of any disease than there is in that of dyspepsia. The theory is to give tonics in some form, but whether these be in the form of acids or of alkalies it is not easy to decide from the symptoms alone. Unfortunately, private patients do not care to have a specimen of their gastric juice drawn off and examined at different times of the day in order to test its condition. Still, if we can know the condition of the stomach and gastric juice the treatment is not so difficult to follow.

Dr. REICHMANN, of Warsaw, has been making some experimental investigations as to the influence of the bitters on the function of the healthy and diseased stomach, (*Arch. f. klin. Med.*, Bd. xiv, H. 1 & 2, 1888.) For a long time bitter medicines were used in treating diseases of the stomach and they were almost regarded as a specific, so much so that even the laity prescribed for themselves bitters and took a dose daily or more often, which was perhaps a mere pretense for getting a drink. The belief generally was that they called forth a feeling of hunger. They increased the secretion of the gastric juice: that is, this increased appetite was considered a sign of increased secretion of gastric juice. The question was how was this increase in the secretion of the gastric juice brought about. Some believed that the bitters increased the intra-vascular pressure and thus increased the secretion of the digestive juices; while others thought that the bitters excited the secretory nerves of the stomach; while again others were of the opinion that this increase was reflected from an excitement of the nerves of taste. Suffice it to say that the effect of bitters is not always to increase the amount of gastric juice. This deduction was made because clinicians blindly referred so many of the symptoms of dyspepsia to a decrease in the amount of gastric juice. Experiments have been carried on with animals through fistulæ to study the effects of different drugs, etc., on the secretion of the gastric juice; but these are of doubtful value as compared with the study on man himself.

Reichmann, knowing that the bitters contained besides bitter principles ethereal oils, salts, etc., and that the effect was sometimes from the oil or salt present, found it better to use a series of bitters rather than one. The effect was noted not only on the stomach but on the whole digestive tract. In some patients the stomach was affected while the intestines were healthy, and in others the reverse was true. Two groups of bitters were used, the pure and the aromatic.

Seven fluid ounces of a cold infusion of the bitters were invariably used. The stomach was first tested as to its secretory activity and as to the mechanism, course and time of digestion. Four sets of experiments were undertaken.

In the first class, the patient took in the morning, fasting, an infusion of one of the bitters, and after ten minutes the contents of the stomach were drawn off with a syphon and examined. In the second class, the patient took, fasting, seven fluid ounces of a cold infusion of one of the bitters, and in thirty minutes (the time it takes for the bitters to disappear from the stomach), seven fluid ounces of distilled water at the surrounding temperature were taken, and then the stomach contents were drawn off and examined. In the first class the direct effect of the bitters on the secretion of the gastric juice was noted; and in the second

class the behavior of the gastric secretion after the disappearance of the bitters from the stomach. In the third class, the patient drank every day for several weeks seven fluid ounces of one of the bitters, and then seven fluid ounces of distilled water, fasting, and after ten minutes the stomach contents were examined. In the fourth class, the patient took, fasting, the white of an egg, and then drank seven fluid ounces of a bitter. In 180, 150, 90, 60, or 30 minutes after, the stomach contents were drawn off and examined. The quantity, remains of the undigested albumen, peptones, reaction, acidity and reaction for hydrochloric acid were tested.

From these experiments it was concluded that:

1. There is a great difference in the effect of the different bitter medicines on the stomach.

2. In every stomach which was empty or not digesting, where the gastric juice was normally secreted, or where its secretion was either affected or increased there was a much less activity of secretion immediately after taking the bitters than after taking the distilled water.

3. If the bitter infusion was taken on an empty stomach, the secretory apparatus was excited to an increased activity after disappearance of this substance from the stomach.

4. When the stomach was digesting (*e.g.*, white of egg) and the bitters were taken, the mechanical activity of the stomach seemed to be injured by the use of the bitters.

5. After taking the bitter infusion for several weeks there was no change in the function of the healthy or diseased stomach, and after the use of the bitters was given up the function of the stomach did not seem to be changed.

Therefore: The bitter medicines should be prescribed only in those cases in which the secretory activity of the stomach is affected; in those cases the bitter medicines should be taken about *a half an hour before eating.*—*Maryland Medical Journal*, May 26, 1888.

Treatment of Tonsillitis with Salicylate of Sodium.

A. HILLABY, M.R.C.S., says: "I think the desirability of having some really reliable remedy for this common and painful affection must be felt by all interested in the healing art; especially when we consider how useless in the majority of cases are the so-called specifics for this disease, whose name is legion. This consideration, together with the idea that tonsillitis bears some not distant relationship to acute rheumatism, led me to try the salicylate in every case that has come under my care for the last two years. As far as I have had the opportunity of examining the action of the drug in those cases, it has come up to my best expectations. The fever, which is not inconsiderable in many cases (103° F.), is speedily reduced, the action of the skin promoted, the resolution of the inflammation in the throat hastened, and the formation of tonsillar abscess averted. My plan of treatment is as follows: Open the bowels freely with a good dose of mistura sennæ co., put the patient on milk diet, and administer the following draught:

℞ Sodii salicylatis.....gr. x–xv
Tincturæ aurantii corticis....℥ x
Aquam..... ad ℥ j

M. Fiat haustus, quartis horis sumendus.

When the inflammation in the throat begins to subside, reduce the dose of the salicylate, and continue to give it in smaller doses for a few days after all throat symptoms have disappeared. The fact of my not having heard or read of the use of salicylate of sodium in these cases, and the hope that some of my professional brethren will give it a more extended trial, induce me to make this communication."—*Practitioner*, April, 1888.

In the same journal, May, 1888, MR. CHARLES GRABHAM says: "I have treated more than a hundred cases with it, and in the great majority speedy resolution has taken place. In most of those cases which went on to suppuration, the remedy had either not been given early enough, or the doses had not been large enough, nor given with sufficient frequency—a most important point where salicylate of sodium is employed, whether in acute rheumatism or tonsillitis. In incipient cases, and especially those occurring in gouty or rheumatic habits, this drug acts like a charm. I give to an adult from ten to twenty grains every two hours, or ten grains every hour until relief is afforded, and then the dose is gradually reduced. I eschew all astringent gargles, and direct the patient to use hot milk and water ones; or, when the breath is very fœtid, warm gargles of permanganate of potassium or hyposulphite of sodium. In cases in which the patient has had several attacks of the disease, small doses do no good at all, and even large ones sometimes fail. Nearly all my failures have been in this class of cases.

"A few years ago the attention of the profession was called to the wonderfully successful results obtained by treating tonsillitis with bicarbonate of sodium, in doses of from ten to twenty grains every two or three hours. I have been trying it in some of those cases where the salicylate has failed, and although I have no extended knowledge of its effects, I feel justified in saying that it appears equal to the latter in subduing the inflammatory action and preventing suppuration, besides being free from the tendency of salicylate of sodium to produce tinnitus, vertigo and deafness. In the case of a gentleman thirty-four years old, who told me he 'had spent the last six years of his life in getting quinsy and getting rid of it,' and in whose case the salicylate had failed, I advised him to take ten grains of the bicarbonate every hour as soon as he felt an attack impending, with the result that several have been rendered abortive."

Use of Antipyrine during Labor.

The Memphis Medical Journal, May 11, 1888, says that a meeting of the Memphis Medical Society during August of the past year, DR. W. B. WINKLER of that city reported a case, which, if the results of a single case could do so, certainly entitled antipyrine to marked consideration as an oxytocic and analgesic. The patient was a multipara, pregnant, and expected to be confined in two or three weeks. The doctor was attending her for a continued fever of malarial origin. He was called late one afternoon; finding her temperature quite high, gave her fifteen grains of antipyrine hypodermically, and departed. She was having no uterine pain whatever, about which the doctor inquired; aside from the distress produced by high temperature, she was comfortable. Upon his return two hours later labor was completed, and his patient told him it was the quickest and easiest she had ever had. Since listening to this report the writer says he has used it in two cases manifesting considerable nervous excitement and tardy

dilatation, with not so decided a result as in Dr. Winkler's case, but sufficiently so to justify him in regarding it as a remedy of much promise in these cases. Antipyrine is being used over a wide range as a most satisfactory sedative and analgesic, and it is by its action on the nervous system that the remedy proves useful during parturition, much in the same manner as chloral.

Alcohol and Heredity.

Some curious observations are reported by Drs. Mairet and Pombemal, in the course of experiments carried out by them on the effects of chronic alcoholic intoxication in animals. A dog, the subject of chronic poisoning with alcohol, was the father by a healthy bitch of a litter of twelve pups, all of which died within two months. Two were stillborn, three died from accidental causes, and the seven others succumbed to epileptiform attacks, enteritis, pulmonary and peritoneal tuberculosis. *Post mortem*, all the signs were found of marked alcoholic degeneration, such as thickening of the cranial bones, premature ossification, adhesions to the dura mater and the cranium, fatty degeneration of the liver, etc. A second experiment comprised the acute absinthe poisoning of an intelligent healthy bitch during the last three weeks of pregnancy. The animal gave birth to six pups, three of which were stillborn. Of the survivors, two were well developed physically, but were unintelligent, and the third suffered from general debility and retarded development. The latter animal conceived from a healthy, vigorous dog, and gave birth to three pups, one of which was the subject of numerous developmental abnormalities; a second died athreptic, and the third had atrophy of the hinder extremities. The degenerative processes appear, therefore, to be more marked in the second than in the first generation. These experiments were interesting, but not conclusive, and the authors propose to enlarge the sphere of observations before venturing to formulate any opinion on their significance.—*Medical Press and Circular*, May 9, 1888.

Silico-Fluoride of Soda as an Antiseptic.

A. W. M. Robson, Lecturer on Practical Surgery at the Yorkshire College, in a communication to the *British Med. Journal*, May 19, 1888, on the use of "salufer" (silico-fluoride of soda) as an antiseptic, concludes as follows:

"1. That 'salufer' is an efficient antiseptic.

"2. That the powder is a strong irritant, even acting as a caustic if dusted on a raw surface; and is therefore, in that form, unavailable for surgical purposes.

"3. That a solution of one grain to an ounce of water is quite strong enough for ordinary purposes; in that strength being apparently unirritating.

"4. That a solution of ten to twenty grains to a pint may be safely used to syringe out closed cavities, even where one cannot be certain of all the fluid returning.

"5. That the solution is unirritating to the hands; which is no small advantage to those operators whose fingers are easily irritated by the ordinary antiseptic solutions.

"6. That the solution acts on the glaze of porcelain after long use, and corrodes steel instruments; but that sponges are unaffected by it. Mr. Thomson kindly suggested to me the addition of bicarbonate of soda to the solution of

'salufer,' to prevent it corroding steel instruments: this certainly diminishes its action on steel.

"7. That a very convenient and comfortable antiseptic poultice may be made by soaking Gamgee tissue or absorbent wool in a hot solution (ten grains to the pint), wringing it free of excessive moisture, applying it to a wound, and covering with gutta-percha tissue.

"8. That, although for ordinary surgical work I may still employ perchloride of mercury, in all cases where there is danger of absorption, as in syringing out cavities, I shall employ 'salufer.'

"9. That I believe 'salufer' will prove to be of great use to obstetricians, it being both safe and efficient.

"10. That it acts very efficiently as a deodorizer to the hands. After examining carcinoma of the uterus or rectum, by washing and steeping the hands in a saturated solution, the odor is removed more efficiently than it is by any solution with which I am acquainted."

Salicylic Acid in Skin Diseases.

Dr. Besnier, in a clinic reported in the *Journal de Méd. et de Chir. prat.*, April, 1888, recommends salicylic acid in the following skin diseases:

In pityriasis versicolor the affected parts should be bathed every evening with hot water and soap. The following ointment should then be applied:

Acidi salicylici	gr. xlv
Sulph. præcip.	gr. ccxxv
Vaselini	℥ iij

The bathing and the application of the ointment should be renewed every evening; recovery usually occurs in about fifteen days.

Salicylic acid will also, he says, act well in senile pruritus, that is to say in the violent itching occurring in old people, unaccompanied with any cutaneous eruption, and which seems to be connected with senile retrograde changes in the skin. In these cases, besides starch baths, the author advises that every evening the whole body should be bathed with a sponge dipped in very hot water (at about 104°), or with water containing a teaspoonful of the following liquid:

Aromatic vinegar	f℥ viij
Carbolic acid	gr. lxxv

The body should then be covered with the following powder, applied with slight friction with the hand:

Starch	℥ iij
Salicylate of bismuth	gr. cl

The salicylate of bismuth may be replaced by salicylic acid. Finally, it may be employed with advantage in acne with comedones. The following ointment may be used every evening for eight days:

℞	Salicylic acid	gr. xxx
	Precipitated sulphur	
	Potash soap	āā ℥ jss

At the end of eight days some emollient application is made, and a great number of comedones will be found to have been expelled.—*Revue Médicale*, April, 1888.

The Efficacy of Large Doses of Arsenic in Chorea.

The curative property of arsenic in certain forms of chorea is well attested by numerous unimpeachable observations. It is equally certain, however, that arsenic does not always cure. DR. JAMES SAWYER, in an article published in *The Birmingham Medical Review*, maintains that when arsenic fails to manifest its ordinary therapeutic efficacy, it is because the drug is not administered in the right way. Properly exhibited, he regards its action as little less than specific. According to him, in order to get the best effects of arsenic in chorea, the remedy must be employed in large and increasing doses. The medicine may be safely "pushed" until irritative vomiting is excited. As with other drugs, some manifestation of physiological action coincides with the direct therapeutic effect of the remedy. It may be remarked in this connection, however, that irritative vomiting belongs rather to the pathological than the physiological effects of arsenic, a fact which Dr. Sawyer's enthusiasm for this remedy may have caused him to overlook.

The author describes a typical illustrative case as follows: "A little girl, ten years old, weakly and neurotic, has subacute, general chorea. I give her five minims of Fowler's solution of arsenious acid, in an ounce of water, thrice daily. In three days, the dose is increased to ten minims; in three days more, to fifteen; in three days more, to twenty; and so on, until she is taking thirty-five minims of the solution, or a little more than a fourth of a grain of arsenious acid, thrice daily. From the commencement of the treatment, the choreic movements gradually subside in severity, in frequency and in extent of distribution, and when the large dose of more than half a drachm of Fowler's solution is attained, the movements entirely cease, and a little vomiting and stomach-ache warn us that we have reached the earlier physiological manifestations of our remedy. We then withdraw the drug altogether for two days. Afterward, for a few days, we give a reduced dose, ten or fifteen minims of the solution; then the remedy is finally discontinued. The child remains well. After a fortnight's further observation, she is dismissed from our care, cured."

Perhaps the author claims too much for his favorite remedy. But it may be well, in suitable cases, where moderate doses of arsenic have failed, to test the therapeutic efficacy of the drug in the larger doses employed by Sawyer.—*Medical Record*, April 14, 1888.

Comparative Study of the Action of Various Drugs on the Heart.

At the Italian Medical Congress, held at Pavia, Professor RUMMO and DR. FERRANINI read a paper on this subject. They have made experiments in the laboratory attached to Professor Cantani's *clinique* on frogs, toads, crustacea, guinea-pigs, rabbits, and dogs, with the view of determining the precise mode of action of those drugs which have a definite effect on the heart. They used the graphic method throughout, and the drugs which they experimented upon were: digitalis, digitalin, strophanthus and strophanthin, upas antiar, helleborin, erythrophlœine, oleander, sparteine, caffeine, adonidine, and convallamarine. They observed that these drugs first diminished the frequency of the pulsations and augmented the the blood-pressure in all animals (homothermic and heterothermic), whereas in a

second stage, especially when the doses were toxic, they disordered the rhythm of the heart, and diminished the blood-pressure. In the third stage, a diastolic pause of the cardiac action, after the use of all the drugs, supervened in heterothermic animals, whereas in the homothermic ones, the heart stopped in the systolic phase only after certain drugs, such as digitaline, strophanthus and strophanthine, helleborine, erythrophlœine, upas antiar, oleander. Adonidine and convallamarine, however, produced in these animals, even in small doses, a diastolic pause of the cardiac action. Sparteine and caffeine, on the other hand, had no great influence on the blood-pressure. As regards the mode of action of the drugs used, it must be remarked that strophanthus and strophanthine, helleborine, digitalis, erythrophlœine, upas antiar and oleandar, chiefly influenced the heart-muscle, and in the second place, the cardiac nerves. Adonidine and convallamarine simultaneously influenced the cardiac muscle and the cardiac nerves, whereas sparteine, and particularly caffeine, chiefly affected the cardiac nerves, and the heart-muscle little, or not at all. All those drugs which augmented the blood-pressure, did this by means of a combined mechanism, as they simultaneously increased the systolic energy of the heart, and produced narrowing of the peripheral blood-vessels by irritation of the vasomotor centres. The experimenters, furthermore, tried to answer the question whether those drugs which had a particular influence on the cardiac muscle had also an effect on the striped muscles in general, and whether those which influenced the cardiac nerves could also produce a similar effect on the whole nervous system. They found that only those drugs which chiefly influenced the cardiac nerves produced also, to a certain extent, disturbances in the nervous system in general.—*British Medical Journal*, March 10, 1888.

Diuretic, Sedative and Diaphoretic Pill.

Dr. J. B. Johnson, Washington, D. C., in a communication to the *Southern Clinic*, May, 1888, says: I have been using the following pill for many years as a substitute for Dover's powder, and in all cases where a diuretic, sedative and diaphoretic are indicated, have found this combination most efficacious:

℞ Morphinæ sulph.....gr. iiss
Pulv. opii,
Pulv. digitalis,
Pulv. scillæ.....ãã gr. xv
Ext. hyoscyam. fl.....gtt. xxij
M.—Fiat pil. xx. One every three hours.

In the ordinary practice of medicine many cases are met which require not only the control of pain, nervous irritability and rapid circulation, but also an increase of the secretions of both skin and kidneys. These indications are served in a most happy manner by the administraton of this pill. I use these pills in order to control the restlessness of pneumonia, the troublesome cough of bronchitis, the pain caused by pleurisy and rheumatism, and to quiet the inflammation and pain which accompany the acute or chronic conditions of diseases of the organs of the female pelvis. I always have these pills with me, and use them freely in all cases where it is necessary to stop pain, quiet the heart,

subdue restlessness, soothe the nervous system, and to increase the action of the skin and kidneys. When opium or its preparations are given alone, their action is to stop all the secretions except that of the skin; but this objection seems to be obviated by the addition of digitalis and squill; and the harmonious action of these pills, when wisely given, is most satisfactory to me and agreeable to my patient.

Hebra's Diachylon Ointment.

Although this preparation is one which is so often employed that its composition should be familiar to every one, inquiries are frequently received concerning its formula, which is as follows:

℞ Olei olivarum optimi.....f℥ xv.
Plumbi oxidi.....℥ iij + ʒ vj.
Olei lavandulæ.....f℥ ij.
Aquæ destil., q. s.

Add the oil to two pounds of water and heat it with constant stirring; while being stirred, the litharge is to be slowly sifted in, fresh water being added as required. The mixture is to be stirred until cold and the oil of lavender then added. In winter a little more oil is requisite in order to obtain a soft ointment. —*St. Louis Med. and Surg. Journal*, May, 1888.

Alcohol as a Remedial Agent.

At the recent congress of German physicians at Wiesbaden, Dr. Binz, of Bonn, read an important paper on Alcohol as a Remedial Agent. Having shown the alternating affirmative and negative views held in recent years on the efficacy of this agent, Dr. Binz maintained that the preponderance of English authority was in favor of the former, and that this view was being reinforced by German original investigators, who, like Zunz, had with much cogency advocated the non-heating and distinctly efficacious virtues of alcohol. Dr. Binz set himself to prove—(1) that alcohol has a value, not represented by any other agent, in heart failure and lung disease; (2) that it is as a *Spärmittel* (economic factor) in the organism, because it is consumed therein; and (3) that it operates as a controller of pyrexia and fever. On the sick-bed its virtues are invaluable; but in the healthy subject it is difficult to define where its abuse is not felt. For the man in good health needs no stimulation; no artificial economiser of energy, or replacer of albumen: no depressant of temperature. All that can be proved in favor of alcohol in such a case is its power of renewing cerebral energy when lowered by mental work. Even here moderation in well-watered alcohol is imperative. Dr. Binz further contended that alcohol consumption between meals, especially in the form of beer, is a great and, in Germany, a national evil, practiced as it is in the stuffy atmosphere of cellars and that, too, for hours. Not only do the secondary products of beer exhaust the system and induce an adipose habit, but the habitual beer-drinker is as much an alcoholist as the drinker of drams, with this difference, that he has not the excuse of the latter in that moral wretchedness for which spirits are an immediate, though in the long run a fatal, remedy. Remembering all this, Dr. Binz concluded that there was a large, not to say an increasing, group of maladies—maladies in which idiosyncrasy was an important factor—where alcohol was imperative, and where no substitute for it could be

found. In the discussion which followed, Dr. Binz was supported by Professor Jaksch, of Graz, while Dr. Nothnagel, of Vienna, put in a special *caveat* against the exhibition of alcohol to children.—*Lancet*, April 28, 1888.

Imitation Kefir.

A very good and agreeable imitation of the Tartar beverage known as "kefir," which is, like koumiss, used extensively in phthisis and other wasting diseases, may be made by the following simple method described by Dr. Levy, in a German chemical journal:—Freshly prepared sour milk is briskly shaken up and then placed in a soda-water bottle, together with 2 per cent. of syrup. The mixture is well corked and kept in a warm place for three or four days. At the end of that time a most agreeable effervescing beverage is obtained by uncorking the bottle. It contains some 2 per cent. of alcohol. If required for use more speedily, a few drops of lemon juice should be added to the syrup.—*Lancet*, April 28, 1888.

Treatment of Rectal Pain with Conium.

Dr. W. Whitla, Physician to the Royal Hospital, and Consulting Physician to the Ulster Hospital, Belfast, in a communication to the *Practitioner*, April, 1888, says: The object of this brief paper is to bring under notice the value of hemlock as a local anæsthetic in painful affections of the rectum and anus. In pruritus ani, especially when associated with or caused by hæmorrhoids, or fissures about the anus or in the lower part of the rectum, the physician or surgeon often finds much difficulty in giving relief. The pain and annoyance caused by a minute fissure is very often uninfluenced by cocaine, even when used as a strong solution, and if relief should follow it is seldom complete, and is always of such very short duration that the patient will generally discontinue its use, preferring the misery of his ailment to the exacerbation of suffering caused by the application of the remedy. Morphine, carbolic acid, creasote, belladonna, and the usual array of local sedatives, have been found in the hands of most observers to give very uncertain results in painful conditions of this region of the body. It will be perhaps the experience of most that they have more frequently aggravated than relieved. Their application I have noticed when used to allay the pain of an inflamed pile has sometimes added a more distressing symptom, namely, itching.

It is a long time since conium has been recommended and used as a local anæsthetic; I had tried it when other remedies had failed, and with only such success as did not tempt me to persevere, in some cases the patients asserting that their symptoms were aggravated. About a year ago I noticed somewhere in our current medical literature very satisfactory reports of this drug from an American source, but I regret that I cannot recall the name of the physician or the journal. Having studied the action of conium some years ago on the endings of the sensory nerves, by applying a strong ointment made with the extract to ulcerated surfaces and painful excoriations and superficial neuralgias, I was led to believe that it had little or no influence upon the sensory terminals. Discovering, however, that the extract of the *British Pharmacopœia* is a most unreliable, and generally almost inert preparation, I determined to try the effects of the *Succus*. Accordingly I have had an ointment prepared in the following manner:—Two ounces of the pharmacopœial juice are placed in a small evaporating dish, and

permitted to evaporate slowly at a heat under 150° F., till the bulk is reduced to about one and a half or two drams. This can be done by placing the dish on the top of an ordinary domestic hot-water cistern for twenty-four or forty-eight hours. The syrupy liquid is then carefully triturated with as much lanolin as will make the weight up to one ounce; the result is a perfectly smooth adhesive ointment of a light brown or dark fawn color, and stable.

Happening to have several rectal cases in which severe pain and torturing pruritus were prominent features, the ointment was carefully applied. One was a case of multiple small fissures accompanied with intolerable itching; another was associated with severe tenesmus and excoriations from the pus flowing from an iliac abscess bursting through the levator ani muscle and penetrating the rectal walls; another was complicated by a bleeding villous growth. These with two cases of hæmorrhoids, one of which had an ulcerated surface, were so markedly and speedily relieved by the conium ointment after nearly every known remedy had failed, that I was surprised at the result.

In a considerable number of cases during the last year the same highly gratifying success was achieved by this remedy, whilst I cannot recollect a single instance where the ointment caused inconvenience. It should be freely smeared *inside* the sphincter, and owing to its adhesive quality can be carried a considerable distance up the rectum by the introduction of the fore-finger of the patient. I have never noticed after its use the serious drawback which follows the prolonged application of every other greasy application to this region, namely a tender, sodden, or raw state of the skin about the margin of the anus. The ointment appears to me to paralyze the endings of the *motor* nerves distributed to the fine muscular layer under the surface of the mucous membrane; the reflex twitchings of this layer keep up the perpetual pain and uneasiness in diseases of the rectum and anus associated with abrasions, ulcerations, or fissures. At the same time it undoubtedly paralyzes the sensory filaments. I have obtained relief from its use in vaginismus and some painful conditions of the male urethra, and find it a good lubricant for the sound or catheter.

To the ointment prepared according to the above formula there may be added 10 or 12 grains of the persulphate of iron as recommended by Mr. Cripps in fissure. From carefully watching the results of this combination of conium with iron, I am certain that it should have a trial before resorting to the knife or cautery. I have seen a fissure heal completely under its use. In acute inflammation of hæmorrhoidal growths associated with swelling and painful throbbing, some relief may be obtained by the free application of the conium ointment without iron, but it is in those exquisitely painful fissures or conditions in which there is a loss of substance in the mucous surface that this remedy will be found to give more relief than any other drug.

Poisoning with Cocaine.

Dr. W. Vignal records an interesting case, occurring in the practice of Dr. J. Déjerine, of poisoning with subcutaneous injections of cocaine. The patient was a dentist, twenty-six years of age. M. Déjerine found him in a semi-comatose state, with generalized muscular contraction of the arms and legs. The arms were slightly bent, the legs were stretched out. Patellar reflex action was not

discernible, owing to contraction. The pulse was quick, but regular (120); the breathing hurried. The eyes were closed, the pupils dilated and insensible to light. There was complete unconsciousness. The following lesions were detected on the skin: There was a pustular crusty eruption, consisting of pustules the size of a pea, covered with a blackish gray, dry scab, on the anterior external surface of the two arms, and on the anterior part of the legs and thighs. This eruption resembled the scabs of syphilitic rupia. The patient had suffered from blennorrhagia. On returning to consciousness, the patient walked about with closed eyes, on account of the painful sensation caused by light on the eyeballs. He gave the following particulars concerning the cause of the attack: Six weeks previously he began to administer subcutaneous injections of cocaine to himself. He began with doses of one-sixth of a grain. He increased the quantity gradually until he employed eight grains. The injection produced agreeable sensations and sexual desires, followed by ejaculation. The evening on which the attack above described took place, he had injected fifteen grains of cocaine at ten o'clock. He employed three syringes and a warm solution. At the third injection he fell down in an unconscious condition. On the following day Dr. Déjerine again examined the eruption, which consisted of limited gangrenous areas of the epidermis, resulting from the injections with cocaine, which the patient had introduced into and not under the skin. At the spot where the injections were made, white cadaverous spots were apparent; these were insensible to the touch. The patient stated that when M. Déjerine pinched him in different places during the state of coma, he was aware of the fact, but that he felt no pain whatever. He was therefore sensible to the contact of an external object, but insensible to pain. The patient recovered. He has ceased to employ cocaine. M. Déjerine considers that if the patient had not gradually accustomed himself to progressive doses of cocaine, the dose of fifteen grains would have proved fatal.—*Dublin Journal of Medical Science*, May, 1888.

Magneto-Therapy.

Professor Benedikt, in a lecture which he recently delivered at the Vienna Policlinik, made some interesting remarks as to the value of magneto-therapy. The opportunity was offered by a girl, 18 years old, who had suffered for several months from very frequent convulsions, which, owing to their being complicated with laughing and weeping, showed that the case was one of hysteria. The expression of the patient's face was very timid, and her complexion continually changed, presenting at one time an excessive pallor, and at others a glowing redness. The dorsal vertebræ, the left intercostal spaces, both ovaries, but particularly the left one, were very tender on pressure, and pressure on the ovary during internal examination brought on a fit of weeping. Professor Benedikt pointed out that such irritable forms of hysteria were peculiarly suitable for magneto-therapy, whereas most of the other methods, such as electricity, hydrotherapy, etc., might aggravate the disease, and the suppression of such attacks by means of narcotics frequently rendered the malady incurable. He applied the metallic magnet over the sensitive dorsal vertebræ without having the patient undressed, as the magnet could act at a distance, and the dress presented no obstacle to its action. After some applications the patient became quasi-paralyzed: she could

only with great difficulty and very slowly, execute the movements which she was ordered to perform. It thus became evident how the magnet influenced the nervous system; it increased the resistance of conduction in the motor nerves, and this resistance could easily become absolute. During the general relaxation of the muscles, the respiration became sighing, and consciousness gradually disappeared. This became evident not only from the complete want of reaction to external impressions, but also in part from the absence of recollection when the magnet was removed and the patient aroused from the hypnotic state by slight irritations. This was the usual form of hypnosis which was observed after the application of the magnet. The direct therapeutic effect in the case under consideration was that the sensibility of the vertebral column disappeared after the application of the magnet, while that of the intercostal nerves became diminished. The ovarian hyperæsthesia, however, in contrast with many other similar cases, did not show any decrease. On the following day, the patient stated that her attacks had become less frequent and less severe. As the ovarian sensibility could not be removed by the application of the magnet to the vertebral column, the patient was directed to lie down on the abdomen, and the magnet, wrapped in a cloth, was first applied with one of its poles to the left ovary, and then to the right one. A few of these applications were sufficient to cure the patient. The chief indication for the application of the metallic magnet was a condition of increased irritability and active symptoms of irritation. With regard to the question, How, in a case like this—which was due to disappointed love—the treatment could remove the consequences of a psychical alteration? Professor Benedikt gave the following explanation: The irritability of the nervous system becomes increased by the psychical irritation, and though the primary effect loses much of its intensity later on, a slight irritation is nevertheless sufficient to produce pathological phenomena. When, however, the irritability is diminished by an adequate course of treatment, the pathological condition is liable to disappear when the cause of the affection has lost somewhat of its primary intensity. This is, of course, true of all therapeutic effects on neuropathic conditions, including the psychical ones; and, for this reason, we cannot expect to influence such patients before the primary irritation has diminished in intensity. Professor Benedikt went on to say that he had no doubt that we could also injure the patients with the magnet: he himself had, however, only once had the opportunity of observing permanent bad effects from this treatment. We had to take into consideration the peculiarities of each case. When the magnetic treatment did not produce a favorable effect at the very outset, he discontinued treatment; and in the same way, he took care not to prolong the experiment when he saw that the patient's readiness to fall into the hypnotic state was considerably increased. Professor Benedikt remarked, at the conclusion of his lecture, that, since he had employed the treatment with the metallic magnet, he found hardly any further indication for hypnoto-therapeutical attempts. There was no doubt that the hypnotizations and suggestions augmented, in a rapid and progressive manner, the paradoxical behavior of the nervous system, and especially the psychical function. More hysteria was thus produced than had been present before; and, strange to say, the mind ("psyche") of the experimenters was so easily brought into a condition of exalted confusion, that they allowed them-

selves to be more influenced in the way suggested by the patients than the latter were by them.—*British Medical Journal*, Feb. 11, 1888.

Peculiar Effect of Cocaine.

Dr. F. H. Potter reports the case of a woman, 24 years old, who had nasopharyngeal follicular disease, and in whom cocaine was used in two and four per cent. strength, at first to overcome her fear of the instruments, and then in the various stages of the treatment, especially when using chromic acid. Almost immediately upon each application—always within one or two minutes—she experienced a strong desire to defecate. Sometimes she could not resist this; and it always appeared upon the use of the drug, and varied in intensity with the amount used and the strength of the solution. It would be slight, easily controlled, or strong and utterly beyond her control, according to the freedom with which cocaine was applied. Other remedies, alone or in combination, applied in the same way with the same instruments, and with the intent to deceive, failed to produce the desire. When cocaine, however, was incorporated with these solutions, the phenomenon appeared. Cocaine has been previously observed to produce intestinal anæsthesia.—*Albany Med. Annals*, May, 1888.

Poisonous Action of Preserved Foods.

The Paris correspondent of the *Therapeutic Gazette*, May 15, 1888, says: The poisonous action of preserved foods is a topic of no little importance, both to America, which prepares most canned meats and vegetables, and to Europe, which consumes them. The problem has already occupied the attention of chemists of both continents, but Dr. Poincaré has handled it from a different stand-point, that of the biologist, and has thus contributed instructive new facts towards the elucidation of a complicated question. Suspecting that poisonings from preserved food are more frequent than is commonly believed, the eminent professor of the Nancy Faculty of Medicine limited himself to direct experiments on living animals and microscopic examinations bearing especially on microbes and micro-organisms in general. The results arrived at were, in substance, as follows:

Direct Poisonous Effects.—When ingested into the stomach the various sorts of preserves, even after six months' exposure to the air, and then in full putrefaction, never caused death, but only sickness ending in vomiting, and more or less severe diarrhœa. At the same time too much importance should not be given to this immunity of animals, as the human stomach is not so robust. When injected subcutaneously, however, preserves proved very injurious. The experiments, made with macerations effected under different conditions, and with thirty-five sorts of preserves, had for a consequence forty-eight deaths out of one hundred and forty-six injections, or very nearly one-third of the subjects. A singular fact noticed was, that while preserved animal food gradually became less virulent on air-exposure, although putrefaction manifestly progressed, vegetables grew to be poisonous in time which had been harmless when the cans were opened. Taken all together, fish proved the worst of all, having from the start

secured a score of five deaths out of six inoculations. Such of the animals as recovered were not without paying a tribute to the inoculation in the shape of huge abscesses, loss of hair, etc. But it is unnecessary to enter into further particulars in this direction, although it must be remembered that the persons who open and handle preserve-cans are exposed to involuntary self-inoculations of the sort. Another deduction that may be drawn from the experiments is that all vegetable preserves, as a rule, are harmless when freshly opened.

2. *Physical Alterations of Preserves.*—Most of them have undergone a commencing modification, even before they are opened. In meats the muscular fibres have partly degenerated and turned to the greasy-granulous or vitreous state. In fishes, especially, quantities of crystalline masses are observed which are soluble in ether, and therefore probably of a fatty nature.

3. *The Microbian Life in Canned Food.*—All preserves were found, at the time they were opened, to contain enough microbes to easily yield appreciable quantities of them on simple washing with distilled water. The microbes were generally in motion from the start, but in all cases they soon began to move, a proof that Appert's process of preserving, adopted in America, as well as Europe, causes at most the apparent death of the microbes, but does not interfere with their aptitude to start on a new life accompanied with probable virulence. To compare the foods together, fish contains more microbes than either bird or mammifer flesh, and meat more than vegetables, sour-crout being of all vegetable preserves the most densely populated with microbes, and pineapples, asparagus, and carrots the least. The varieties of microbes are considerable, and very changing according to time or circumstances, and range from the bacilli, filaments, etc., to the micrococci, bacteria, vibrios, etc.

4. The results of the cultivation were in all cases negative. Although microbes multiplied, and putrefaction set in, the injections remained without effect.

5. The blood of animals succumbing to the injections of what may be called the mother-watery tincture of preserves was always abnormal, various malformations of the corpuscles being apparent, and numbers of micrococci developing in the blood-serum, together with bacilli.

6. *Chemical Poisons.*—Leaving aside mineral poisons, too often found in canned goods, the disproportion between the number of microbes and the toxic properties of the products suggested the possible presence of ptomaines in some of them, the alkaloids being due to either ordinary decomposition or to the microbes themselves. Although too much importance should not be attached to a negative result, no ptomaines were found, a fact showing that these substances are not the only poisonous principles to be found in decaying food materials.

The conclusion to be drawn from the foregoing is that canned food should not be kept too long, and that it is apt to be dangerous, even when free from mineral poisons and apparently in a good state of preservation. It is not a condemnation, but a caution to be careful. In fact, the question is one with many sides, and one side that needs investigation is the state of the food-stuffs themselves before they are preserved. Stale meats and vegetables will not improve because they have been boiled in a tin can and labelled with a fine chromo.

Best Antiseptic Solution for the Microbe of Hog Cholera.

Porcine pneumo-enteritis, in other words hog-cholera, has made its appearance in France, where it was brought apparently from Algeria. Drs. Cornil and Chantemesse, two well-known bacteriologists, are now investigating the guilty microbe with a view to devise a mode of vaccination that will render hogs cholera-proof. Their preliminary examinations have shown the microbe to survive long desiccation and freezing, and to live and multiply in plain distilled water. Such antiseptics as saturated solutions of ferrous sulphate, zinc chloride, picric acid, lime-water, carbolic acid, and salt have but little effect on the virus. Corrosive sublimate, in solutions of one per mille, which sterilizes the microbe-cultivations obtained on the potato, acts but imperfectly when in contact with animal substances, owing to the protection afforded by albuminoids. The best antiseptic solution is the following:

Muriatic acid	2 parts.	
Carbolic acid	4 "	
Water	100 "	M.

The liquor will sterilize in less than one minute all cultivations of the microbe. Thus one point has been gained; to attain the next—namely, a vaccina tion effective against hog-cholera—MM. Cornil and Chantemesse are now raising crops upon crops of pneumoenteric microbes, cultivating—or breeding—them for their experiments. So far they have only been dealing with cheap guinea-pigs and rabbits, but as soon as they are well prepared they will experiment on the hog.—*Therapeutic Gazette*, May 15, 1888.

Successful Method of Disinfecting the Room in Case of Cancer.

Dr. H. Gerould, of Cleveland, Ohio, writes that from September, 1886, until March, 1887, he had in his house, and under his daily care, a patient with cancer of the uterus. To counteract the offensive odor of the disease, he made repeated experiments with the prominent disinfectants. The following proved to be all he could desire: viz., three drams of potassium nitrate dissolved in eight ounces of Platt's chlorides, full strength. In this he saturated thin muslin (cheese-cloth), then dried it thoroughly. When it was necessary to cleanse or purify the room, he burned small strips of the cloth on a shovel in different parts of the room and under the bed clothing. The effect was magical. Almost instantly all offensive odors disappeared. This was repeated when necessary, the potassium nitrate being used to aid combustion. The result was such that no discomfort was experienced by the attendants, and no offensive odor could be detected in the adjoining rooms. This was daily remarked by friends. The undertaker said it was the first case of death from cancer where he could detect no trace of the disease. This method of disinfection, the writer adds, would be equally efficient in all contagious, pestilential, or infectious diseases.—*Medical Herald*, May, 1888.

Rapid Staining of Tubercle Bacilli for the General Practitioner.

Dr. H. P. Loomis, in a communication to the *Medical Record*, June 9, 1888, says: The method at present generally adopted in the laboratories—the Koch-Ehrlich method—is a complicated process, requiring much practice and judg-

ment, especially in the decolorization with nitric acid; it is not, consequently, adapted to the general practitioner's use, and will yield reliable results only in the hands of experts. The belief that any technique which is simple and rapid, and reduces the staining of the tubercle bacilli to a mechanical basis, would be of use to the general practitioner is my reason for presenting the following method, which I have used for some time with uniformly satisfactory results. While working with Professor Koch last spring, I found that in his personal examinations he made use of a solution of fuchsine known as Ziehl's solution, and hardly ever had recourse to a double staining.

To an expert, this gives without doubt the quickest staining possible; but, because of the weakness of the solution if made according to Ziehl's formula with the ordinary fuchsine purchased in this country, and of the lack of a contrast color, it does not yield satisfactory results to others. Making use of the principle which Ziehl has incorporated in his solution—viz., that carbolic acid can be substituted for aniline oil—I first stain the bacilli with a very strong solution of carbolic fuchsine, and then make the contrast staining by what is known as Fraenkel's solution, which combines the decolorizing and dyeing in one process. This furnishes a specific staining for the tubercle bacilli—a deep-red color; the other elements in the sputum, the putrefactive bacteria, the pus-cells, the epithelium, taking the second color—blue.

The advantages of the method which I propose are these: 1. Simplicity: one solution is poured on the sputum and then the other, with no judgment necessary as to the amount of staining or to the decolorization; this makes the process simply a mechanical one. 2. Quickness and precision: the whole process occupying but two minutes. 3. The great intensity of color with which the tubercle-bacilli are stained. 4. The solutions keep indefinitely, especially the carbolic solution, which cannot decompose like the aniline water solution of fuchsine; they are, therefore, always ready for use.

The Method of Preparing the Solutions.—First: The Fuchsine Solution. 1. Pour into a small bottle of alcohol, say a four-ounce bottle, enough fuchsine to form a well-marked layer over the bottom of the bottle, or, in other words, more than enough for a saturated solution. 2. Let it stand for twenty-four hours, shaking the bottle from time to time. 3. Into a four-ounce bottle, containing a five per cent. aqueous solution of carbolic acid, pour enough of the first solution to produce a distinct preparation of the fuchsine—say about ten or fifteen cubic centimetres (three or four fluid drachms); the exact amount is not important. 4. Shake a few times and set aside for twenty-four hours. This is the carbolic solution of fuchsine to be used.

Second: The Methylene-blue Solution. Put into a four-ounce bottle:

Alcohol	30 parts
Distilled water	50 "
Nitric acid	20 "

and add methylene-blue until the solution is more than saturated.

The Method of Staining the Sputum.—1. Prepare two cover-glasses in the ordinary way, by placing a small portion of the suspected sputum on one cover-glass, and, by means of the other, pressing it out between them into a thin layer; on sliding them apart, a thin film of sputum will be left on each cover-glass. Allow the cover-glasses to dry, and then, holding them firmly with a pair of for-

ceps, prepared side uppermost, pass them rapidly three times through the flame of a spirit-lamp. 2. Hold cover-glass as before, and pour on it a few drops of the fuchsine solution. Then warm the cover-glass over a spirit-lamp until steam arises, being careful not to allow the fluid to boil; now let the solution on the cover-glass cool. 3. Pour off the fuchsine solution. 4. Pour on the cover-glass the methylene-blue solution, and after half a minute or so—the exact time is not important—5. Wash off the stain carefully with running water (a wash-bottle is convenient). 6. Dry the surface of the cover-glass which does not contain the sputum. 7. Mount on a slide in water and examine.

A little practice will enable one to carry out this simple technique with great rapidity; the only difficulty is in preparing the solutions at first; but as they will keep for months and are always ready for use, this is not of much moment. One great advantage to the practitioner will be the doing away with all dishes, acids, etc. The two bottles always stand ready, and when necessary, the sputum can be examined while the patient is in your office. To emphasize the quickness of the process the whole formula can be stated in three lines:

1. Pour your fuchsine solution on prepared cover-glass. 2. Heat, and then allow to cool. 3. Pour off solution, and pour on methylene-blue solution. 4.. Pour, wash this off, dry, and mount in water.

Antipyrine in Hemorrhage and Ulcers of the Leg.

The *British Medical Journal*, May 19, 1888, states that Dr. Alexëi G. Glinsky, of Kharkov, was induced by the statements of Hénocque (see REPORTER, Feb. 11, p. 181) and Huchard as to the hemostatic properties of antipyrine, to try the drug. He employed it in the shape of cotton-wool plugs soaked in a 5 or 10 per cent. solution, or powdered with the antipyrine in a series of cases of bleeding, such as epistaxis, hemorrhage from surgical or accidental wounds, etc. On the whole, his results were unsatisfactory. In some cases of lacerated wounds of the fingers hemorrhage was arrested, but it was not certain that this effect was not rather due to pressure than to antipyrine. Dr. Glinsky tried it on a wound on his own finger, but was obliged to have recourse to perchloride of iron. In three cases of severe epistaxis the bleeding came on again in five or ten minutes after withdrawing the antipyrine plugs, and ultimately could be stopped only by plugging the posterior nares. Antipyrine had no effect in checking hemorrhage after excision of acute condylomata, labial papilloma, etc. On the other hand, Dr. Glinsky was much pleased with antipyrine as a dry dressing in indolent ulcers of the leg. The healing action of the drug in these cases is so rapid that he strongly recommends the use of antipyrine in powder when other means fail. He also obtained good results with antipyrine in acute articular rheumatism, in which it is said to act as effectively as salicylate of soda and more rapidly. It also proved useful in migraine and neuralgia of the fifth nerve. Unpleasant secondary effects (rash, sickness, collapse) occurred in his experience very rarely.

Therapeutic Value of the Salicylate of Mercury.

DR. HENRY T. INGE, of Mobile, Ala., in a paper read before the Medical Association of the State of Alabama says that this new therapeutic agent has been known to the profession only a short time, and that consequently its value will

be hard to determine, owing to the fact that it has not yet been generally manufactured. He was unable to procure any till September, when a New York druggist succeeded in buying an ounce from E. Merck. He has since then give it a fair trial on a few cases in which mercury was indicated. The salicylate of mercury is, he says, a white amorphous powder, free from odor, tasteless, and slightly acid to test paper. It is slightly soluble in water and alcohol. It contains .02 per cent. of water of crystallization and 59 per cent. of mercury. Those who have written about this drug have limited their remarks to its use in syphilis.

Dr. Bruno Chaves, of Rio de Janeiro, in an article published in the *Medical and Surgical Reporter* of April 23, 1887, p. 519, said that he had used it with marked results in many cases of syphilis, both internally and externally. Dr. Inge is inclined to differ from him, however, as he does not think the salicylate nearly so valuable in general treatment as the bichloride. He has given both a fair trial, and does not doubt that the effects of bichloride are more prompt as well as more lasting. His usual course is to begin mercurial treatment as soon as the secondary symptoms appear. To show the comparative value of the two preparations, he gives the history of two cases which came under treatment at the same time, a man and his wife. The man had mucous patches and rubeola from head to foot, and was given the following prescription :

℞ Salicyl. hydrarg.....gr. iv
Compound tinct. gentian.....f. xl
Syr. aurantii.....f. ℥ ij
Aquam q. s. ad.....f ℥ vj

M. Sig.—Take a teaspoonful three times a day.

His general health improved, but the syphilitic lesion did not.

This treatment was continued for twenty-seven days, and when the eruption disappeared, Dr. Inge attributed it to the natural course of the disease, and not to the medicine. The patient's wife came in on the fourteenth day of his treatment, literally covered with pustules. She was given the same prescription, substituting bichloride, 3 grs., for the four grains of salicylate of mercury. On the eighth day the pustules began to disappear, and ten days after there was not one on her body. He did not give up the treatment then but increased the dose of each, so that the man was taking five grains of the salicylate to the six ounces, and the woman four of bichloride. The latter continued to improve and had no other lesions, while the former showed symptoms of tertiary syphilis. Dr. Inge increased his dose to eight grains, but with no good effect. When he had about determined to change to the bichloride the patient began to improve, and was not seen for two weeks, when he said he was well, but he had been taking his wife's medicine. These cases were under treatment in September and October, and, as is always the case with negroes, they discontinued treatment as soon as all external evidence of disease disappeared.

In conclusion he says: "I have used this drug also in a few cases of non-syphilitic skin eruptions with some success. I had been treating a case of erythema circinatum for several weeks without any appreciable effect. I ordered an ointment (of the salicylate) of the strength of two scruples to the ounce of lard, and the effect was remarkable. The patient was a farmer in good health; he stated that he had had the eruption before, but that it would disappear until the present attack, which rendered him unable to work. This is a rare form of skin disease,

and the only case I have ever had, and I think its cure with this agent worthy of remark, owing to the fact that I had previously used other forms of mercurial inunctions, chrysophanic acid ointment, oxide of zinc, and in fact everything I thought could possibly cure the trouble. I have used as a powder to apply to herpes so often found on the glans penis and prepuce, the following:

℞ Hydrarg. salicyl.....gr. x
Zinci oxidi .....℈ ij
Bismuth. subnit .....ʒ iss

I have never had any trouble with herpes, as this powder soon dries up the eruption. The salicylate of mercury has proven of undoubted value in eczema. The worst case of vesicular eczema I ever saw proved amenable to its use."—*Atlanta Medical and Surgical Journal*, June, 1888.

Permanganate of Potash as an Emmenagogue.

Dr. L'voff, writing in a Moscow medical journal on the emmenagogue action of permanganate of potash as described by Drs. Ringer and Murrell in 1883, states that during the four years which have elapsed since the publication of that paper, he has treated some 200 cases with permanganate. His results are thus summarized in five classes of cases: 1. Thirty-two cases of otherwise healthy girls who suffered with dysmenorrhœa with diminished flux, no assignable cause being made out. Here pills containing permanganate and extract of pulsatilla were ordered for a week or ten days before the period, with excellent results. 2. Seventeen cases in which the involution of the uterus after childbirth had been excessive, or where atrophy of the uterus and the ovaries had occurred during lengthened puerperal affections, especially during parametritis. These patients took the pills regularly for from three to six months. Improvement in the quantity of the flux generally commenced in from four to six weeks in young women, and in from three to four months in older subjects. 3. Sixty-two cases in which pelvic peritonitis occurred after labor. Here a good result was obtained in the majority of the cases, but in a few no effect was observed. 4. Sixty-five cases of young married barren women, in whom gonorrhœal gonococci were mostly to be found, and many of whom suffered from affections of the tubes or ovaries. In this group of cases the results obtained from permanganate were not very striking—indeed in many of them it was useless. 5. Eleven cases of early appearance of the change of life (from 35 to 40 years of age), an atrophic condition being always recognizable. Here the permanganate proved useless.—*Lancet*, March 31, 1888.

Salicylate of Soda in Polyuria.

Dr. J. N. Randall, of Decatur, Illinois, in a communication to the *Medical News*, April 7, 1888, says: On June 23, 1887, Mrs. L. brought to my office her daughter, eleven years old. The child was of large frame for her years, but pale and flabby, and though the weather was warm she complained much of cold hands and feet. The mother informed me that the child was voiding too much urine. They were requested to return after a lapse of twenty-four hours, during which the mother was to determine accurately the measure of the urine. This was found to be nine and a half pints. Urine was found to contain no sugar.

Fluid extract of valerian in half drachm doses three times daily was given for ten days to no purpose. Thirst during this time was insatiable. The child was directed at the first visit to quit her attempts to learn music, to do as little work or play as possible.

Ergot and tannic acid were given next for ten days; the former in half drachm doses three times daily, and five grains of the latter, to be given alternately. They did no good.

It was now near the middle of July; the thirst was difficult to appease, the quantity of urine was as great as before, and the child was weaker and further reduced in weight to seventy-nine pounds. The urine was found, as before, to be free from glucose.

She was now given eight grains of salicylate of soda in aqueous solution after each meal; her meals were small. In ten days there was an appreciable amendment; she showed more solicitude about her food; she felt stronger. The treatment from this time forward consisted of nothing else than the salicylate of soda; the dose of eight grains was increased to ten, but so much complaint of headache was excited that I was obliged to suspend dosing for a few days. No restriction was imposed upon the choice of food.

The amount of urine diminished slowly but steadily until, in November, the daily discharge was two and a half pints. In the meantime her color returned, there was no longer complaint of lassitude and of inability to breathe easily. Her weight was increased to eighty-seven pounds. She was sent to school, and has manifested no illness of any sort since. The remedy was discontinued early in December.

I am aware that little importance is to be attached to a single result of this sort, and regret that further opportunity has not been mine to test the efficacy of this remedy; but cases of polydipsia are not of common occurrence, and, rather than wait until time shall bring to me chances to test the value of this remedy, I submit this report for what it is worth. I regret that I am unable to state the duration of this affection prior to my first acquaintance with the case. The mother was aware that the child had been obliged for weeks to rise repeatedly during the night to avoid her urine, but was astonished at its volume when she measured it. It is scarcely necessary to add that the mother's attention had been excited by the consuming thirst for weeks before she took any measures for its relief, or before she deemed any explanation necessary.

Water-Gas.

The *Therapeutic Gazette*, May 15, 1888, in a leading article on this important subject, says: Water-gas, which in many parts of the United States is being introduced as a substitute for coal-gas, is prepared by several processes, the principle of all of which is the passage of superheated steam through anthracite coal at a high temperature. As the result of the decomposition a nearly odorless gas is obtained, which is chiefly composed of hydrogen and carbonic oxide, and burns with little light but with very great heat. This first product is the so-called *fuel water-gas*, and has been extensively employed for heating purposes. In order to employ it as an illuminant it is necessary to add to it certain highly-carburetted compounds, which are usually obtained by the decomposition of some

of the so-called coal naphthas. Owing to the large amount of carbonic oxide which they contain both of these water-gases are exceedingly poisonous. As the fuel water-gas gives no notice of its presence in the atmosphere, save by the production of growing apathy and unconsciousness in those who breathe it, its use on a large scale is attended with a practical certainty of a large loss of life, and its manufacture and public distribution should be forbidden by law.

Illuminating water-gas is no less poisonous than the fuel water-gas, but in the process of enrichment with carburetted compounds it obtains an odor which approximates in intensity that of coal-gas, and consequently gives warning of its presence in the air. It has been, and is still being introduced into various cities in the United States. Whether it ought or ought not to be employed is a question of the greatest importance, and demands attention at the hands of that profession which is the guardian of the public health. When in the subsequent paragraphs of this editorial the term water-gas is used, *illuminating water-gas* is intended. The various analyses which have been published of water-gas show that it contains from thirty to forty-five per cent. of carbonic oxide, while ordinary coal-gas has in it from three to seven per cent. of the same compound. The question of the comparative poisonous properties of these two gases evidently divides itself for discussion naturally into two parts: First, what is the result of the combustion of equal volumes of the two gases in yielding substances to the air more or less deleterious? Second, what are the comparative poisonous properties of the unburnt gases?

In regard to the first of these questions, we find that if the average composition of coal-gas and water-gas as given by Sedgwick and Nichols is made the basis of calculation, that the burning of one hundred cubic feet of the coal-gas would give rise to 55.84 cubic feet of carbonic acid gas, while the combustion of an equal volume of water-was would generate 73.32 cubic feet of carbonic acid. Hence 55.84 : 73.32 : : 100 : 131. That is, the combustion of a given volume of the water-gas would produce over thirty per cent. more carbon dioxide than the combustion of an equal volume of the coal-gas, and would therefore contaminate about one-third more of the air of a room.

In regard to the second question, all authorities are in accord in believing that the poisonous properties of both coal and water-gas are practically dependent upon the carbonic oxide in them, the other ingredients being so feeble in their toxic properties that they can produce serious results only by taking the place of ordinary air and thereby causing suffocation. For present purposes the two gases may therefore be viewed as dilutions of carbonic oxide. At first thought it is natural to suppose that the poisonous qualities of any diluted toxic agent must be in direct proportion to the concentration of the poison, so that if water-gas contains five or six times as much carbonic oxide as does coal-gas it must be five or six times as poisonous. This statement does not, however, express the real truth; the noxious properties of the two dilutions not being in proportion to the percentage of carbonic oxide which they contain. When either gas escapes into a room it becomes mixed with the air, and much of it passes out through the windows, fire-places, and other apertures. In order for acute poisoning to occur from carbonic oxide there must be a certain percentage of it in the air of the room. Now suppose that neither gas were to contain enough carbonic

oxide to influence the atmosphere of the room sufficiently to make it capable of taking life. It is evident that under such circumstances neither gas would be destructive to life; but altering our suppositious case, let it be supposed that one gas contains more than sufficient poison to saturate the atmosphere up to the dead-line, while the other does not have quite enough to produce such saturation. Under such a supposition it is evident that if the first gas should contain only twice as much carbonic oxide as does the second gas it would be exceedingly misleading to say that it is twice as poisonous, the truth being the difference in the poisonous properties was the difference between life and death, there being in one gas sufficient carbonic oxide to cause death, while there was not enough in the other to produce an immediate result. The relations between water-gas and coal-gas may be very well paralleled by occurrences in the Confederate prisons during the war of the rebellion. Around the prison was a certain line over which no prisoner was allowed to pass, the sentries being instructed to shoot any man who crossed this so-called dead-line. When a man was ten feet within that line the noxious result to him that would follow his advancing eleven feet would be truly out of proportion to that which would be produced by his advancing nine feet.

According to the general authorities, one-half of one per cent. of carbonic oxide in the atmosphere of a room is sufficient to cause death. The presence of one per cent. of coal-gas in a room would necessitate the presence of six-hundredths of one per cent. of carbonic oxide, which would not be sufficient to produce any immediate bad result. On the other hand, one per cent. of water-gas would be equivalent to from thirty to forty-hundredths of one per cent. of carbonic oxide in the room. It is plain that three per cent. of coal-gas in an atmosphere would do no serious injury, while but little over one per cent. of the water-gas would be required to take life. In a series of apparently very careful experiments, Messrs. R. T. Sedgwick and Ripley Nichols found that if an ordinary gas-burner, using six feet per hour of gas, were allowed to remain with the stopcock turned on, unlighted, in a compartment of ordinary size, that very rarely did more than one per cent. of gas accumulate in the room in the course of some hours. This would indicate that if an individual should go to bed and leave one burner turned on, but unlighted, the probabilities would be very large that in the morning when found his life could be saved if coal-gas were in use, but with water-gas he would of necessity perish. This *a priori* deduction has received confirmation by Sedgwick and Nichols through direct experimentation. They had two rooms prepared, in all respects as near alike as possible, and of such size as to contain seven hundred cubic feet of air each. In each of these rooms were placed dogs, cats, and rabbits, and an escape of gas was allowed from one burner. In the room in which water-gas was used, in one hour and thirty minutes the animals became delirious, and some of them convulsed. In one hour and forty-five minutes all the animals were unconscious. In three and a quarter hours several of them were dead, and within eight hours all of them had expired. In the room in which the coal-gas escaped, at the end of three and a quarter hours the animals seemed only a little drowsy. At the end of eight hours this condition was exaggerated. At the end of twenty-four hours one cat and one rabbit were dead, but the other animals were not even unconscious, and, as the

temperature of the night was below zero, it is probable that the death of the rabbit and the cat was largely caused by cold.

Professor Sedgwick also experimented upon himself, and found that exposure for less than two minutes in a room whose atmosphere contained two and a half per cent. of water-gas produced anxiety, trembling, partial loss of muscular control, slight nausea, and an after headache of the severest character, which lasted several hours.

The introduction of water-gas into cities has always been accompanied by an extraordinary increase in the number of deaths from gas poisoning. In New York City, in the seven years terminating January 1, 1888, there were one hundred and seventy-seven deaths from water-gas and nine deaths from coal-gas, while the number of deaths in January of this year in New York City is said to have equalled all the deaths from coal-gas in Boston in the last fifty-five years. In the five years ending January 1, 1885, there were in the city of Baltimore forty-five deaths from water-gas. In the year 1887, following the introduction of water-gas into San Francisco, the number of deaths was twelve. Eleven deaths were reported in the New York newspapers as having occurred in Chicago in 1886 and 1887. Of the exact number that really did occur in Chicago we have no accurate information.

An event which took place at Reading, Pennsylvania, while we were preparing this editorial for press, points out a very important possible danger in the use of water-gas. It is generally thought that these deaths are the result of carelessness in leaving the gas turned on, although extinguished. It would appear, however, that, owing to the variations in pressure, and probably also to the variations in the mixture of the constituents of the water-gas, or to other cause, when the gas is left burning low at night it is entirely possible for the light to go out and afterwards sufficient gas escape into the room to cause death. Thus, on March 30, in the Keystone House in Reading, two gentlemen were found dead in their beds from water-gas poisoning, and, according to the testimony at the coroner's inquest, the gas had been left by them lighted.

Every gardener who has greenhouses in a city knows that plants in such greenhouses are quite liable to be seriously affected, or even killed, by the escape of gas into the soil from leaks occurring many feet or even yards away. Especially is this true in the winter, when the frozen top-soil prevents the ready escape of gas into the atmosphere. When it is remembered that about 7 per cent. of the total products of the Philadelphia gas-works is lost through leakage, and that, consequently, many millions of cubic feet yearly escape, it is evident that there may frequently be deteriorations of health resulting from the habitual breathing of noxious gases, in which the cause of the ill health is not even suspected, much less reported. It is not possible to form any positive definite opinion as to the extent of this evil, much less to establish such opinion by definite statistical evidence. The possibility of such slow chronic poisoning is, however, worthy of having much weight attached to it.

It is evident that any danger which may now exist would be greatly increased by the substitution of water-gas for coal-gas. That these fears and deductions have a substantial basis is proven by certain occurrences in the city of Troy in New York, in the winters of 1886 and 1887. In that city on one occasion, in

five stores located near one of the mains, the clerks and porters, about fifteen persons in all, were so seriously affected by water-gas which entered the houses through the soil from a leak in the mains that in one day fifteen persons were obliged to have medical aid, two or three losing consciousness for a time. On the evening of January 16 the inhabitants of a whole row of houses were all seriously overcome by the gas which came from a leak in the mains in the street, and but for a happy chance would probably all have perished. Fortunately, a gentleman living in the third story of one of the houses was awakened about eleven o'clock P. M. by the extraordinary noise made by his dog, and when aroused found that he and his wife, with the other inhabitants of the building, were all sick. An alarm was given and the neighbors' houses were entered by the police, who found many sick, and in one flat all the inmates were dead. That these persons did not die of suffocation, but of carbonic-oxide poisoning, is proved by the fact that the fires were burning in the stoves and the lamps upon the tables, as well as by the post-mortem appearances.

In Massachusetts the manufacture of water-gas is forbidden by law, and the attempt to have the law repealed has led to a protest against the legalization of the use of any gas which contains more than ten per cent. of carbonic oxide, the protest being signed by most of the leading physicians of the State, as well as by the various health officers and medical examiners in the various towns and counties. The College of Physicians of Philadelphia has adopted resolutions in accord with this protest, and we do not see how any one who is conversant with the history of the matter and with the results of the use of water-gas, and who has no interest in the matter, can be at discord with the opinion which has thus been authoritatively expressed in two great cities.

Oxalate of Cerium in Sea-sickness and Other Disorders.

Dr. W. H. Gardner, Surgeon, U. S. A., says in the *Medical Record* of June 2, 1888, that he has been a traveler by land and water ever since he was able to toddle around, and has met many cases of sea-sickness—in stages, ambulances, cars, boats, and ships—and he asserts confidently that oxalate of cerium administered in ten, fifteen, or twenty-grain doses, every two or three hours, in about one tablespoonful of water, will cure more cases than champagne, bromide of potassium, chloral, or anything else he ever tried. He declares that it will cure, or materially relieve, seventy-five per cent. of all cases that apply for treatment.

He was first induced to use this remedy, in these seemingly large doses, by a patient with gastritis following a debauch, who came to him years ago. The patient was given pounded ice, chloral, bromide of potassium, creasote, hypodermics of morphine, mustard over the stomach, and all that the books prescribe or the ingenuity of the profession had devised, and finally Dr. Gardner left six powders of oxalate of cerium, five grains each, one powder to be taken every two hours in a tablespoonful of water. He went to see him six hours afterwards, and found his stomach quieted, and that he was drinking some iced milk. He then learned he had taken the first powder (five grains) and had thrown it up, so he took the remaining five powders at one dose (twenty-five grains) and it quieted the stomach at once, and he got well immediately. Shortly afterward Dr. Gardner was called to see a man who had been shot. The ball—thirty-one calibre—

entered on the right side of the abdomen, ranging upward, backward, and to the left, not wounding the bowel, but probably some branches of the solar plexus, and lodged somewhere in the muscles to the left of the spine; there was little if any hemorrhage (external), and when he recovered from the shock, under the use of ammonia, brandy, and digitalis, the most persistent symptom was the continuous and exhaustive vomiting, which, however, was controlled in about twenty hours by the use of ten grains of oxalate of cerium in a tablespoonful of water every three hours. The man made a speedy and good recovery, and is still driving a stage-coach in Arizona.

Dr. Gardner says he has used the oxalate in hundreds of cases of sick headache, and the morning sickness of pregnancy, and almost always with marked success; but it must be used in at least ten-grain doses for adults, to do any good. He has always found it very useful in relieving the cough of phthisis in these doses. He does not pretend to know its *modus operandi*, but believes it acts as a sedative to the pneumogastric and sympathetic systems of nerves. He has never seen any unpleasant effects from its administration in twenty-grain doses every three hours.

The Effects of Antipyretics in the Treatment of Disease.

Dr. Alfred L. Loomis in his anniversary address before the Medical Society of the State of New York, February 8, 1888, said: During the last decade, since the thermometer has become a part of the physician's "armamentarium," antipyretics have taken a more prominent place in the treatment of disease than ever before, probably for the reason that by it we are able more readily and accurately to determine their effects upon the body temperature. If we accept the view that high temperatures cause destructive metamorphosis of tissue, a view which in some unaccountable way has gained almost universal acceptance—the importance of reducing high body temperatures in all diseases cannot be overestimated, and we are justified in resorting to the most powerful antipyretic agents to accomplish it. But there is very little, if any, evidence that febrile temperatures of 106° or 107° cause any serious injury to the body; certainly that no such dangerous destructive changes take place in the blood and solid organs as we have been led to suppose from the writings of Continental observers. I can find no clinical or experimental evidence to sustain the popular doctrine of Liebermeister and others, that the grave symptoms in fever, the symptoms which usually render a prognosis unfavorable, are referable to a high temperature range. In fact, the evidence of the so-called parenchymatous changes and of the grave febrile symptoms in acute infectious diseases, are as well marked and as often present in cases where the temperature-range at no time reaches 103°, as in those cases which are attended by very high temperatures. In a series of cases of typhoid fever of low temperature, often subnormal, which have come under my observation during the past year, in which the ratio of *mortality* was unusually high, I was surprised at the development of so many of those very grave symptoms which I have been occustomed to regard as due to the effects of high ranges of temperature; from these and similar observations in other acute diseases, I have come to the opinion that there is no necessary relationship between the other febrile symptoms and the temperature range.

It is evident that we have passed through the period of enthusiasm in the antipyretic treatment of disease, and already prominent workers have come seriously to consider whether the dangers of hyperpyrexia have not been overestimated, and the question is being asked, May not the high temperature in disease, especially in infectious diseases, be a conservative process. From statements already made, it is evident that elevation of temperature is far from being all that there is to fever.

A pertinent question for every practitioner of medicine to put to himself is, How much has he accomplished by the use of antipyretics, in the arrest and safer conduct of disease, and are there no dangers attending their employment? Whatever answer may be given to these questions, I am convinced that the heroic use of antipyretic measures which within the past few years has come into such general use—the one idea of the modern therapeutist being to reduce temperature at all hazards—has a side of danger that should not be lost sight of. If the temperature range in a case of fever or pneumonia is about 105° or 106°, and can readily be reduced by mild antipyretic measures, the condition of the patient at the same time being made more comfortable by their use, I should most certainly recommend their employment. But when powerful antipyretic measures are required to effect temperature reduction, and its reduction is only temporary, I question very much their beneficial effects; in fact, I am quite confident that such reductions are obtained only by an expenditure of vital force on the part of the patient, which largely diminishes his chances of ultimate recovery, especially if the hyperpyrexia has been long continued, for I have frequently noticed that their daily employment, for a prolonged period, has been followed by grave nervous phenomena, and the evidence of the most extreme cardiac failure, greater than could have been caused by the high temperature alone. I think no one whose experience is at all extensive in the use of antipyretics in the treatment of acute infectious diseases, will for a moment claim that they have any power in shortening their duration or greatly modifying their severity.

Time will not allow me to enter into a detailed account of the different antipyretics now in use, to compare their relative merits, nor to theorize as to their mode of action. In a general way they may be divided into two classes, the application of cold to the surface and the internal administration of antipyretic drugs. The mode of action of the two classes is evidently not the same, although they both may effect the reduction of temperature. Whether they act by diminishing heat production, or by increasing heat dissipation, is still undetermined; for every day's experience teaches that sometimes when antipyretic drugs act badly or inefficiently, cold applied to the surface in the form of baths or packs often accomplishes the desired results in the most satisfactory way, and *vice versa*. It has seemed to me that the beneficial action of antipyrine and antifebrine is not so much due to their power of controlling temperature, as to their tranquillizing effects upon the nervous system. Dr. Wood, from his experiments on animals, concludes that antipyrine diminishes heat production and heat dissipation, and that its action on the body heat is entirely independent of any influence on the circulation; that it probably acts through the nervous system directly upon the chemical movements of the organism.

Clinical experience has taught me that opium is often one of our most

efficient and reliable antipyretics. The old custom of administering Dover's powder in small doses, at stated intervals, throughout the course of a typhoid fever, undoubtedly had its origin in the power of opium to control temperature by its tranquillizing effects upon the nervous system. As all discussions in this line must at present be theoretical and unsatisfactory, I close the consideration of this problem, with the practical question: If temperature reduction does not shorten the duration, mitigate the severity, or avert serious complication in disease; and if the ratio of mortality is not so diminished as to encourage us that we are making advances by antipyretic measures, on *what basis are we justified in their use?* Evidently, on the basis that by their use we relieve one of the many phenomena of fever. If this can be accomplished without serious loss of vitality, or at the expense of the reserve force of the patient, we are justified in their use; but do not let us imagine that by reducing temperature we are controlling fever.

In review of the subjects which I have brought to your notice this evening, it is evident that the work of to-day is gradually rescuing medicine from the realm of wilful and unreasonable speculation, and is establishing it on a basis of new facts. Yet I would warn those who are in haste to elevate the experimental above the practical, that the experimental will never alone be able to accomplish the great work that is ever before the practical physician. We cannot safely forsake the rich store-house of clinical observations that have been gathered by so many master minds, and withdraw into the recesses of the laboratory; for, although in the work of the laboratory we hope to find the solution of many of the problems with which we are now struggling, it must be remembered that the special field of medical investigation is, and ever will be, the study of disease in its activities. Experimental work, even in the study of the causes of disease, must always be onesided, the whole number of its causes can only be studied and understood at the bedside of the patient. The great treasures of clinical observations must ever be the basis of true medical advancement. It is here that medicine is to find her firm and enduring foundations. Let us then labor without rest, in the laboratory, at the bedside, and in the dead-house, for the solution of the great and vital problems that are before us in every branch of our science, and the full benefit of our labors later generations will come to know and enjoy.—*Medical News*, February 11, 1888.

III. GENERAL CLINICAL MEDICINE.

Abdominal Pressure in Hysteria.

Dr. A. M. Dokhman, in a note communicated to the *Russkaya Meditzina* on the arrest of hysterical paroxysms by pressure on the "ovary," points out that the treatment is by no means new, as blows on the abdomen used to be administered by means of iron instruments in the Senmedarski epidemic, and were employed very largely by Goltz as early as 1727. He suggests that, although pressure is made over the region of the ovary, it does not appear that the ovary has much to do with the effect produced, for similar pressure is efficacious where no ovary exists—that is to say, in male patients. He is disposed to compare the effect to that produced by compression of the carotid artery, which will sometimes arrest a paroxysm, and he suggests that the sudden stimulation of the splanchnic nerves may produce an alteration in the vaso-motor relations, and in this way may cause the arrest of the paroxysm.—*Lancet*, April 28, 1888.

Case of Chorea Treated with Antipyrine.

This case is reported by Wm. Maclennan, House Physician, from Professor M'Call Anderson's Clinique. M. S., 7 years old, was admitted to the Western Infirmary, Glasgow, January 27, 1888, suffering with well marked chorea, of three weeks' duration. Her family history is good, but unimportant, as none of her relatives have ever suffered from this or other nervous affection, and there is no rheumatic taint in the family.

Her present illness set in three weeks ago, when her father noticed that, on account of the "jerkings" of the right arm, she became unable to feed herself, and that the spoon often missed her mouth. The spasmodic movements next affected the left arm, and ultimately the legs were implicated, so much so, indeed, that it was only with difficulty she could walk without support. The muscles of the trunk were only to a slight extent involved, and both sides equally. During the fortnight before admission her speech became embarrassed, and she now articulates very imperfectly, and occasionally stammers. Even while sleeping there are some slight twitches of the muscles, and she grinds her teeth. Before the onset of this illness the child seemed in good enough health, and there is no definite history of a fright.

On admission, it was noted that her gait was staggering and aimless, and, indeed, she could not walk without support. She could not pick up a small object or perform any delicate action, and the nurse had to feed her at every meal. There was no detectable disease of any organ. In a few days after this she became worse and could not walk at all. Treatment was begun on January 30. Besides rest in bed, she was put on gr. v antipyrine thrice daily, and after continuing at this dose for a week, without improvement, it was increased to gr. x.

On February 12, after four days of the antipyrine, in ten grain doses, there was decided improvement. Her walking had become more steady, and she could make a fair attempt at feeding herself, and when at rest, even under observation, no spasmodic movements were noticed as formerly, and the defect in speech, which had amounted to a stammer, was scarcely noticeable. On February 14, the antipyrine was increased to gr. xv without any unpleasant symptoms following, and the improvement from this date became so rapid that on the 21st she was perfectly well, so that all symptoms of chorea were quite gone within a period of six weeks of their development, and in less than three from the commencement of the treatment.

In his remarks upon this case, Prof. Anderson said that he had for some months been using antipyrine and antifebrine in a great variety of apyretic cases, and being much impressed with its great value as a sedative in many nervous affections, he thought that it might perhaps be useful in chorea. In this case it is obvious, he says, that the cure was not spontaneous, because chorea, when well marked, does not tend to recovery in so short a time as six weeks; because the child was getting steadily worse until the antipyrine was commenced; and because the symptoms improved with a rapidity proportionate to the size of the dose. He is not so sanguine as to suppose that we have now found an infallible specific for this troublesome disease, but thinks there are good grounds for giving antipyrine, and such like remedies, a fair trial in a series of cases.—*Glasgow Medical Journal*, May, 1888.

Early Diagnosis of Typhoid Fever.

At the meeting of the South-East Hants Medical Society, April 18, 1888, Dr. Axford made some remarks on the difficulty attending the diagnosis in the early stages of some cases of typhoid, especially instancing cases of typhoid simulating intermittent fever. He then read notes of a case which to all appearance was metritis and parametritis, but which ultimately showed itself to be in reality enteric fever. Miss W., 33 years old, had suffered with dysmenorrhœa. Commencing to menstruate on Sunday, November 20, she was exposed to severe cold on the following day; the flow ceased at once, and severe pain in the uterine and left ovarian region came on, and there was a patch of dulness in this part. There was acute pain of a spasmodic character in the lower part of the abdomen, and the attacks of pain were accompanied by retching. A vaginal examination caused most acute suffering. The os was swollen harder than usual, and very tender, and pushed somewhat forward. On pressing upwards towards the left ovary there was some swelling to be felt, and very great pain was produced. At first the bowels were confined, but early in December there was diarrhœa for a few days, but this was never severe. Typhoid spots were seen about the fourteenth day. The patient was treated by hot fomentations and poultices, with laudanum and quinine internally. The temperature on the fifth day was 104° F.; it generally ranged from 101° to 103°. In the early stages there was little difference between the morning and evening temperature. Convalescence was established by the twenty-eighth day, and resulted in complete recovery.—*British Medical Journal*, May 5, 1888.

Mortality of Moderate Drinkers.

The *British Medical Journal*, March 17, 1888, says: Some light is thrown on the vexed question of the superior healthfulness of abstinence or moderate drinking by recently published returns. The United Kingdom Temperance and General Provident Institution has two sections of lives. The one section consists only of abstainers; the other of non-abstainers, known drunkards being excluded. During the period of 21 years the number of expected deaths in the moderation section was 5,785. Only 164 fewer deaths actually occurred. The expectancy among the abstaining assured was 3,655, and the deaths amounted to 1,076 less. There is, therefore, the enormous deficiency in favor of teetotal survivors beyond expectancy of fully 26 per cent. The teetotal assured have received bonuses, on an average 24 per cent. higher than have accrued to the restricted drinkers. Authentic returns of the time during which members of friendly societies have received benefit tend to show the comparative freedom from incapacitating illness of abstainers. The *Rechabite Directory* for 1887–8 (quoted by the *Wiltshire County Mirror and Express*) gives some interesting comparisons. Between 20 and 60 years of age the Salford Unity of Rechabites (all abstainers) show only 48 weeks, as against 59,6 weeks of the Manchester Unity of Oddfellows; a superiority of 11.6 weeks. Between 60 and 70 years the Rechabites had 50.1 weeks to 62.5 weeks of the Oddfellows, a difference of 12.4 weeks. Grouping these figures together, the Rechabites had 98.1 weeks as against 122.1 weeks of the Oddfellows, a gain of 24 weeks. The abstaining followers of Rechab also came out well compared with the Foresters. From 20 to 70 years of age they suffered from 98 weeks of ill-health, as opposed to 126.3 weeks among the Ancient Order of Foresters; between 70 and 80 years, from 122 weeks as opposed to 148.2 weeks among the Foresters. Collecting these returns together, the Rechabites required financial benefits during 220 weeks, and the Foresters during 274.5 weeks, a difference in favor of the Rechabites of 54.5 weeks. There can be little doubt as to the general tendency of these striking tables in favor of the healthfulness of abstaining temperance.

Albuminuria in Enteric Fever.

At the meeting of the Medical Society of London, April 23, Dr. Handford, of Nottingham, read a paper on Albuminuria in Enteric Fever. He gave an account of his observations in 75 successive cases, which had been under his care during the past three years in the Nottingham General Hospital. There were 10 deaths, 7 of them due to perforation, giving a mortality of 13.3 per cent. In 8 cases a *post-mortem* examination was made, followed by a microscopical examination of the viscera. The account of the lesions in the kidneys was based on these, and on two or three other cases not included in the series. Murchison gave 549 cases by ten observers, in which albuminuria was found in 157, or 28.6 per cent. In the 75 cases observed by Dr. Handford, the urine was examined by himself in every case (save one not included in the tables) several times, and in most cases daily during the severity of the disease. Albumin was present in 42, and absent in 32: that is to say, it was found in 56 per cent. of the cases. Of the 42 cases with albuminuria, 9 died, giving a rate of 21.4 per cent. Among the 32 without albumin there were no deaths. Among the 42 cases there were 3

children, and in the 32 there were 14, showing that there was a much less liability in children to the albuminuria of enteric fever. The cases of albuminuria were classified under three heads: 1. Those with pre-existing definite kidney disease; these cases seemed very rare. 2. Where there was abundant and persistent albuminuria, often to the extent of .05 up to .1 per cent. Among these the mortality was very high. The most marked change in the kidney in such cases was found to be interstitial or diffuse nephritis, with glomerulitis and hemorrhage. The nephritis was probably of septic origin, like so many other complications of enteric fever. 3. Where the albumin existed only as a trace, and that only for a short time. Among them the mortality was much less. The renal changes were less definite, and sometimes scarcely any alteration could be detected. The chief alterations appeared to be vascular engorgement with capillary hemorrhage, slight cellular infiltration and multiplication of nuclei, and cloudy swelling of the epithelium. Marked parenchymatous nephritis, with fatty degeneration of the epithelium, was not found, though some degenerative changes were generally present. The latter were, however, difficult to distinguish from alterations which occur so rapidly *post-mortem*, especially in death from peritonitis due to perforation. Numerous drawings of microscopic preparations were shown.—*Lancet*, April 28, 1888.

Atony of the Intestine in its Relations to Graves' Disease.

Dr. Federn, at a recent meeting of the Imperial Royal Medical Society of Vienna, communicated a paper on partial atony of the intestine with reference to certain nervous disturbances, and particulary those of Graves' disease. He diagnosticated atony of the intestine by the permanent presence of percussion dulness over certain parts of the abdomen. Injection of liquids into, and Faradisation of the respective parts of the intestine produced a considerable amount of relief in some cases, especially in the case of Graves' disease. The palpitation of the heart greatly diminished; the diarrhœa which was present disappeared, and the general condition of the patient considerably improved. The lecturer was of opinion that the galvanisation of the cervical part of the sympathetic might perhaps be identical with an irritation of the vagus, and that the above-mentioned favorable results obtained on direct Faradisation of the intestine could thus be explained.—*Medical Press and Circular*, April 25, 1888.

Hereditary Atrophy of the Muscles.

At a recent meeting of the Society of German Physicians of Prague, says the *Medical Press and Circular*, April 18, 1888, Dr. von Limbeck brought forward and discussed a very interesting case of hereditary atrophy of the muscles. The patient, a woman 24 years old, had never suffered from any particular disease, and especially from no infectious one. Five years ago she noticed a weakness in the lumbar muscles, so that she could go up stairs only with great difficulty. The muscular weakness gradually increased, and she was, for this reason, admitted into the clinic of Prof. Pribram, of Prague, in the month of October last. It was then stated that no such disease had ever occurred in the family of the patient; out of five of her sisters four were quite healthy, and only one of them, who is four years younger than the patient, presented, as was found out later on,

the same group of symptoms though in a lesser degree. The patient under consideration was well developed, and showed no symptoms of cerebral disease nor affection of the cerebral nerves. The mobility and the sensibility of the upper extremities were quite intact, and there were no trophic disturbances of the skin; the development and the function of the muscles of the shoulder zone were also normal. When the patient stood upright the lumbar part of the spinal column formed a lordosis; when she was sitting, however, it presented a kyphosis. The gait of the patient is wavering (tottering), and on a closer examination of the muscles the extensor muscles of the back were found to be much atrophied and impaired as to function in comparison with the other muscles of the back, which were very well developed. The patient can raise herself from the stooping position only with very great difficulty, and this becomes very striking when she is directed to raise an object which lies on the floor. When she is directed to assume a knee-elbow-position and to then raise herself, she executes with the upper part of her body a number of rotatory movements, embraces the legs with her hands, lifts them gradually higher and higher, and, as it were, climbs upwards on her own legs, as in Duchenne's paralysis. When the patient is directed to put one thigh over the other, she can do so only by availing herself of the other foot, from which a paresis of the musculi levatores femoris might be deduced. The muscles of the calf and the extensor muscles of the thigh were not hypertrophied, but the irritability of the extensor muscles of the back was much impaired.

The microscopical examination of some muscular fibres of the extensor muscles of the back, which were excised with the permission of the patient, showed the presence of the degenerations of Zenker. As to the younger sister of the patient, whom Dr. von Limbeck had examined in November of last year, paresis and atrophy of the extensor muscles of the back were also present, and she also stated that her illness was of long standing.

Hence, the patient had pronounced hereditary muscular atrophy, or more properly, progressive muscular atrophy of the type of Leyden-Möbius. The views as to the nature of this type and the other types of muscular atrophy have been considerably cleared up in the last few years. The transition of the various types into each other, and the common anatomical character of the affected muscles, rendered the separation of the various types as diseases, *sui generis*, quite impossible. Erb, for this reason indeed, comprised the different forms of muscular atrophy, such as the juvenile form of Erb, the type Leyden-Möbius, the type of Duchenne, and the pseudo-hypertrophic under one collective name of "dystrophia muscularis progressiva," the anatomical character of which was progressive degenerative myositis. In recent times, however, the connection of at least one category with an affection of the ganglia of the spinal cord has been proved.

Case of Epilepsy.

At the meeting of the Medico-Chirurgical Society of St. Louis, February 21, 1888, Dr. Fry reported a case of a child having a very peculiar convulsion. The child, about three and a half years old, if at play, stops for an instant, there is a sort of imbecile laugh, then there is a minute in which the muscles, especially of the arm and of the legs, are thrown into a tonic spasm. At this time the face

becomes very congested and red, the pupils dilate and the child seems temporarily not quite itself; however it doesn't seem unconscious, and any annoyance such as pinching its face or disturbing it, will be resisted apparently in a perfectly conscious manner. As the attack passes away the pupils resume their normal size, the congestion of the face subsides, and there is again a sort of imbecile titter or laugh. Dr. Harris the attending physician describes it as more like an hysterical manifestation than otherwise. Two days before it had had twenty-five attacks during the day; they came in groups, an attack lasting for half a minute, and one following after another very rapidly within a very short time, and only ceasing after four or five to fifteen of them had occurred. So much for the attack. As to the cause, last November, the middle of the month, the child fell backwards from a chair and struck its head hard on the floor, and it was very white the following day, and showed other evidences of malaise. About four weeks ago the child was playing and swallowed a bullet that had been apparently shot against a wall and flattened. Within four days after swallowing the bullet the child had the first of these peculiar seizures. Last August the child was bitten on the arm by a dog, not injured, but simply frightened; the arm was not scratched, although the dog took an appreciable grip on the arm. Again, on the day in which these spasms commenced, the dog ran at the child and frightened it very much. On examining the nose there is some evidence of injection of the mucous membrane. The prepuce of the child was much contracted, though there had never been any difficulty in passing water; yet, on account of the contracted condition the physician circumcised the child, and the wound healed very nicely. The child had been on a restricted diet under their care, and there is no apparent intestinal irritation; the bowels are regular and there is no evidence of disturbance of the stomach at all. When the child has an attack, it would be very hard to say whether it is unconscious or not; it is certainly only momentarily so, if at all. He jumps up and runs to his parents when he feels the attack coming on, and it cannot be said positively that there is a condition of unconsciousness.—*St. Louis Courier of Medicine*, May, 1888.

Case of Tertiary Syphilis.

Dr. R. A. Hasbrouck, Chicago, Ill., reports the following case in the *Chicago Medical Times*, May, 1888: Mr. C., 28 years old, married, had been confined to his bed for several days, but being in rather poor circumstances, he had delayed calling in a physician. When seen the patient was greatly reduced in flesh, having lost not less than fifty pounds during a period of two months. Complaint was made of severe pain in the region of the lower dorsal vertebræ, which had been so excruciating as to destroy all sleep and produce extreme exhaustion. To move was almost an impossibility, so that the same position had been kept until the man was on the border of becoming covered with bed-sores.

An examination gave the following diagnostic points: Pressure upon the lower dorsal vertebræ would produce unbearable pain and cause the patient to attempt to jump from the bed; on the left shoulder there was a large cicatrix and at its edge extending down into the tissues covering the scapula, was an ulcer almost reaching to the bone. This ulcer was not discharging, but appeared to be healing. On the left leg below the knee about one inch, and on the anterior

outer surface, was an ulcer nearly three inches in diameter discharging very freely from many little openings having orifices at the base. The discharge was of a brownish dirty color and evidently came from tissues lower down, as pressure from below upwards would cause the pus to run in small streams. The circumference of the ulcer was well defined; its general appearance was as though cut down into the flesh; beyond the edge of the ulcer the flesh and integument were healthy to all appearances. On the right arm and about over the inner condyle of the humerus was a grandular swelling, in size that of a large hen egg, quite painful under pressure, and had been characterized by a very slow growth until two or three days before the examination was made. The man's appetite was poor; bowels constipated; urine not far from normal. The ulcers were causing no pain. By questioning it was found that the man had suffered from severe rheumatic pains for eighteen months, which were of such a character as to necessitate the use of an opiate, and as a result the "opium habit" was upon him. To all inquiries as to whether the patient had had the primary lesion of syphilis, the answer was negative; but the case was as beautiful a case of tertiary syphilis as man ever possesses. Having formed a diagnosis of syphilis the patient was put upon a generous diet, and to reach the pain directly and at the same time produce a constitutional effect, iodide of potassium in six grain doses in a drachm of the compound syrup of sarsaparilla was to be taken every four hours, while he was awake. The ulcers were to be washed clean and then were to be filled with iodoform each day until they were healed.

In three days the pain in the spinal column was gone; the discharge from one ulcer was greatly diminished, the other was rapidly healing; the appetite was fair, and the patient was able to sit up in bed. Six days from the beginning of the treatment Mr. C. was up and walking about the house, in two weeks he was able to attend some light work, but objected to the use of the iodoform while attending to business.

At the eighteenth day the ulcers were healed, leaving behind two well marked cicatrices; the weight of the patient was constantly increasing. The swollen gland of the arm was painted with tincture of iodine the first day and at the fifth day of the treatment it had subsided to about the normal size. The man was advised to continue the use of the remedies internally, for some months, alternating with a course of iron.

Case of Hemidrosis Treated with Permanganate of Potash.

This case is reported by WM. MACLENNAN, House Physician, from Prof. M'Call Anderson's Clinique. M. C., 14 years old, was admitted to the Western Infirmary, Glasgow, January 20, 1888, and gave the following history of her illness: For 8½ months she had suffered from the development of patches on the skin which suddenly became painful, and shortly afterwards the seats, at first of a serous, and afterwards of a sanguineous discharge. From first to last the parts affected were the prominence of both cheeks, the suprascapular regions, and the front of both thighs and legs, showing, in a very striking manner the symmetrical distribution of the disease. About eleven months before admission she had an attack of epistaxis which lasted for about a day, and was pretty severe. There

had been a recurrence of hemorrhage from the nose about three weeks after this, but not nearly so profuse as on the former occasion. Exactly one month from the date of the last epistaxis, the first spot appeared on the skin of the left cheek. Its development was as follows: A small round area of the skin on the left cheek became suddenly the seat of an aching pain, which lasted from about a quarter to half an hour without any further change. At the expiration of this time, there began to exude from the patch a sticky transparent material like gum or white of eggs. The commencement of this exudation seemed to be coincident with, or to determine, the cessation of the pain. This discharge continued for one-half to one and one-half hours of a clear color, but at the end of that time it became at first mixed with, and, apparently, ultimately replaced by, a sanguineous discharge or exudation. After the discharge became red it never continued longer than an hour—usually less. The hemorrhage varied greatly in amount, there being sometimes only a few drops, while at others a small stream of pure blood flowed. From time to time, without any constant interval, fresh areas, which passed through the same changes, appeared, but two days seldom elapsed without some spot making its appearance. She has noticed, however, that every third week there was a great exacerbation of her symptoms, which lasted for about seven days, during which time the hemorrhagic areas were much more numerous. She has not yet begun to menstruate, but seems in every other respect to be a robust and healthy girl.

Her treatment, which was as follows, was begun on January 28, at which time the hemorrhages from the skin were at their worst. Her bowels were carefully regulated with pil. aloes et ferri gr. v; and pil. potassii permanganatis gr. i thrice daily, was ordered to be given for two days prior to the time that menstruation seemed likely to occur. On February 2, the note was: Three days ago she menstruated for the first time, and the discharge, though scanty, was otherwise normal. It continued for four days. To-day two spots have reappeared on the face and one over the left acromion process, but the hemorrhage was very slight. On February 16, one spot again appeared on the face.

One March 3, the note was: For the past two days the permanganate pills have again been given, and to-day menstruation has again appeared without the slightest recurrence of the hæmorrhage from the skin.

In his remarks upon this case, Prof. Anderson said that cases of this kind are sometimes termed ephidrosis cruenta, or bloody sweat, but they have no connection with the perspiration, although, doubtless, the blood escapes through the cutaneous follicles. Most of them—though by no means all—are dependent upon amenorrhœa, or scantiness of menstruation, and treatment must, therefore, in the main, be directed towards the establishment of the menstrual flow. A somewhat similar, though much more remarkable case was, he says, recorded by him some years ago, and in it, too, a cure followed the restoration of the menstrual flow.—*Glasgow Medical Journal*, May, 1888.

Locomotor Ataxia Confined to the Arms: Reversal of Ordinary Progress.

Dr. S. Weir Mitchell, in a paper read before the Philadelphia Neurological Society, March 26, 1888, said: E. C. B., M.D., of California, aged fifty-five, was

in active practice until two years ago. He has no constitutional disease of any description. By his own description he was a well man up to July, 1887, possessing nearly perfect health. Near to that time he observed that, in writing with a steel pen, his hand began to change—becoming unsteady. There was no tremor, certainly none manifested in his handwriting. He only discovered that there was slightly increasing numbness in the cushions of the finger-ends of both hands, extending through the hand, up into the arm, through the chest and down over the belly and back. About September 20th, this was slightly present in the toes, but more distinctly afterward. There seem to have been no preceding eye or bladder symptoms, nor, indeed, any warning such as usually attends an outbreak of locomotor ataxia. The character of the case has not greatly changed since the first attack; it has only shown more decisively its nature. Perhaps the best description I could give of it would be that which I take from my note-book of January 15, 1888. To make clear what follows, I will state that the case is in my experience exceptional. I have seen none which I could place alongside of it. It consists of an attack of locomotor ataxia affecting practically the upper extremities. In other words, the legs now show the same condition which one is apt to see in ordinary cases of this disease in the arms after the legs are pretty well on their course of degenerative change.

Nutrition.—This man weighs one hundred and thirty-eight pounds; has lost twenty pounds; his height is five feet nine inches; his limbs are thin; throughout the body the muscles are more or less flabby, notably in the upper extremities, but nothing to be called atrophy; the legs are liable to swell slightly during the day; the arms are more liable to be swollen after sleep. The patient, an accomplished physician, declares the swelling not to be at any time œdematous. It offers slight resistance to pressure, and but a part of the swelling is due to serum. There is an appearance of yellow pallor about him which caused me to request Dr. John K. Mitchell to make an examination of the blood. The result surprised me. The corpuscles amount to 3,980,000 per c.cm.; the coloring matter is seventy-five per cent. of the normal, by Fleischl's test. Certainly the appearance of the skin would seem to indicate a want of blood not shown to exist by accurate test, repeated again and again. This condition of things I have several times seen in posterior sclerosis, a not excessive want of color of corpuscles, and a whiteness of skin and mucous surfaces which once we would have accepted as sure evidence of anæmia.

Sensation.—There is no pain of the character of neuralgia. He says that since his boyhood he has been liable to aches in the great trochanter and between the shoulders.

Touch.—At a half inch the compass points begin to be felt as two in the finger of either hand. There is no remarkable difference between the two hands. The sensation of numbness with which the disease began is, perhaps, more pronounced in the legs now than at first; but about the clavicles the sensation of all kinds appears to be normal; also it is fair for heat and cold, but decisions as to these are less rapid in the arms than in the legs. The pain sense is everywhere preserved. I ought to add that when the left hand is chilled it is apt to cause pain to run up the arm on that side. The special senses appear to be normal.

Dr. G. E. de Schweinitz gives the following statement of the eye conditions:

"Vision in each eye with correcting glasses, normal; no disturbances of accommodation and his reading glasses allow comfortable range; three degrees of insufficiency of the interni; no other muscular anomalies, except slight drooping of the right upper eyelid. Pupils present normal reactions for light and accommodation; ophthalmoscope shows fine floating vitreous opacities; distinctly gray optic disks with hazy edges and general epithelial choroiditis. Form fields are normal; there is concentric contraction of the color fields. From these facts I conclude that there is beginning gray degeneration of the optic nerves, as well as disturbances of the choroid and vitreous humor."

Motion.—Motion is generally weak; when he walks any distance he moves slowly, and in action the arms tire more easily than the legs. He stands well with his eyes open; but with his eyes shut he sways one inch to the right and an inch and a half forward, so that his station may be stated to be good for a man in his condition. It certainly shows how little ataxic trouble there is in the lower limbs. He moves the legs well, and the common actions of the feet exhibit little incoördination in these parts. On the other hand, the upper limbs are awkward in their movements. There is a great lack of coördination in every effort to make delicate adjustments, as when he attempts to touch his nose or ear with the eyes shut, or to bring the forefinger of his right hand in contact with the tip of the little finger of the left hand. He fails also in the test of weights; he is unable to tell the difference between an ounce placed in his palm and a half ounce, or an ounce and a half. I took tracings of his efforts to hold a pencil steady. They showed no tremor—less than is common, and this negative symptom is a remarkable one in ataxics. The effort to drag *a* from right to left resulted in a singular illustration of defective coördination.

Electrical reactions.—There are no unusual peculiarities.

Muscular reaction.—All the muscles of the arms react to a direct blow, but are incapable of being reinforced by motion. The leg muscles have, as I judge, about the normal amount of response to the hammer blow, but are readily reinforced by hand motions. It is interesting to contrast these conditions of the leg and arm muscles. Elbow-jerk is lost on both sides, and is non-reinforcible by motion or sensation. Knee-jerk is *excessive* on both sides and is easily reinforced. Ankle-jerk is also extreme, and when powerfully reinforced a slight clonus exists. Thus, if the tip of the foot be pushed upward so as to stretch the tendo Achillis, the blow on it results in two or three forward movements of the foot; at the same time, the patient makes a powerful motor reinforcement. I remark in this case, as I have done in others, that a blow on the left patellar tendon gives rise to motion in the left leg, also to what seems to be a reflex jerk of the left arm. I suspect that this phenomenon is due to the strong reinforcements produced by emotion; for, while it is frequently seen in the first interview with the patient, it may be impossible to evolve it at another sitting.

Secretions.—Generally normal; occasional diarrhœa; no painful gastric crises. There is no trouble with the bladder or rectum. Sexual power is lost.

Reflexes.—Skin irritations of the soles of the feet appear to cause no motion. Testicle reflexes absent, as also abdominal reflexes.

Remarks.—This case stands alone in my experience. It is a locomotor ataxia beginning in the arms. These lose their tendon reactions, but show excess

of direct mechanical excitability. In the legs we find excessive knee-jerk and normal mechanical responses. The conditions seen in common cases of ataxia are here reversed. I have little doubt that in the earliest stages of this disease the tendon reactions are excessive.—*Medical News*, April 21, 1888.

Protection Against Eczema Solare Afforded by a Red Veil.

Dr. Th. Veiel, of Canstatt, in the *Vierteljahresschrift für Dermatologie et Syphilis*, Heft, 4, 1887, records a remarkable instance in which, after all available remedies had been tried, relief was obtained by wearing a red veil. The patient was a woman 56 years old. Until 24 years old she presented no unusual sensitiveness of skin; but at that time, when travelling in the month of April, severe swelling of the face came on without any apparent cause. There were red wheal-like elevations, combined with swelling of the eyelids. These disappeared after four day's confinement to her room. Any exposure to the sun, however, either in clear or cloudy weather reinduced it, and only when June arrived could she go out with freedom. The same irritability returned next spring, and lasted well into summer, to cease again in autumn and winter. This recurred every spring, but lasted each year a longer time; the infiltration of the skin was likewise greater, and the surface wept at the height of an attack. For fifteen years, since the patient reached 41, there had been no winter cessation, yet there was a diminution of the irritability of the skin during the two months in which the sun was lowest in the horizon. This amelioration ceased towards the end of January. Even in a closed apartment, the side of the face turned to the light, if near the window, showed some irritation, manifested by a papular eczema. Shortly after sunset and at night, she could go out in all winds and states of the weather. Even in the keenest east wind the skin was unaffected. Of many and various external remedies, none gave the least relief; most increased the irritation. Dr. Veiel next endeavored to discover what property of the sun's rays induced this irritability. It was not the heat rays, for she could endure the glow from a fire or oven unaffected, and the same could be said of the ordinary rays of light, since neither lamp nor candle light incommoded her. The chemical rays still remained, and in accordance with the experience of photographers, a red veil was found to limit their influence most completely. She was accordingly provided with a red veil and sent out into the open air in the height of the day. The veil proved invaluable; for she who in July could not leave her room for two minutes during 8 and 9 a. m. without suffering, with its aid remained repeatedly unharmed out of doors in August, for forty minutes at a time, between 10 and 11 a. m. The case is altogether an unique one. It may be suggested as a corollary, that the blue veil usually worn in excursions on the mountains as a protection from the sun ought to be replaced by a red one, since it is well recognized that blue affords the very least protection against the chemical rays of the sun.—*Edinburgh Medical Journal*, May, 1888.

Observations on Prognosis.

Dr. P. H. Pye-Smith concludes a paper (*Guy's Hospital Reports*), as follows: *Epidemic* diseases are most fatal when first introduced. *Acute* diseases, following upon chronic, are the most dangerous. A degree of *pyæmia*, which is of

slight importance in a child, is grave in an adult, and imminently perilous in an old man. *Typhus* fever is most dangerous to persons who have passed their sixtieth or seventieth year; less so to infants and those between thirty and fifty-five; and least dangerous to children about five and to young adults. *Small-pox* in these particulars closely resembles typhus. Whooping-cough is dangerous during infancy, and benign after five years of age. *Scarlet fever* seldom takes on a malignant form when it attacks adults. *Acute lobar pneumonia* has usually a favorable issue in youth, and is usually fatal in advanced years. In young adults *pneumonia* is rarely fatal unless the patient has disease of the kidneys or of the heart, or is of intemperate habits. *Pneumonia* is also a dangerous complication of fevers or acute rheumatism. *Acute lobar pneumonia*, when not fatal, leaves the lung uninjured after recovery, and the patient in good health. It is seldom or never followed by phthisis, even when it attacks the apex. Primary acute *pleurisy* is not fatal, unless it is accompanied by pericarditis. Pleurisy, if under treatment it ends in death, is secondary to tubercle or to cancer, or to diseases of the kidneys. Œdema of the larynx is very seldom dangerous; œdema of the lungs is usually so. Acute *bronchitis* is a frequent cause of death in young children and old people. Fatal *bronchitis*, in persons between ten and sixty years of age, is either capillary or secondary to tubercle. *Phthisis* is most pernicious when it is hereditary. Consumptive patients, who lose flesh and color and appetite, with but little signs of disease in the lungs, are in a worse case than those who have marked local symptoms, but whose appetite and nutrition are good. *Hæmoptysis*, even when copious, is not always of ill omen. It is rare for *hemorrhage* from either the lungs or the stomach to be immediately fatal, except it proceed from an aneurism. Chronic valvular disease of the *heart*, when it complicates phthisis, does not aggravate the latter—rather it checks its progress. Sudden death is more frequent from aortic than from mitral lesions; in regurgitant than in obstructive disease of the aortic valves, and in stenosis than in dilatation of the mitral orifice. *Apoplexy*, when ingravescent, is commonly fatal. In apoplectic attacks, the ultimate prognosis depends chiefly upon the degree and continuance of unconsciousness; the immediate prognosis upon the degree in which respiration is affected. Chronic diseases of the *spinal cord* are more likely to end favorably in women than in men. Chorea is only fatal when the patient cannot sleep. *Malignant tumors* are more rapidly fatal in the young than in the old. *Cancers* in the aged are sometimes exceedingly slow in their progress, and may even in rare cases atrophy. *Stone* in the kidney may frequently be cured without operation. The opposite is true of stone in the bladder. *Diabetes* is rapidly fatal when it occurs in young men, more curable in middle life, and of little danger in later years. *Diarrhœa* is dangerous only in infants and in persons above sixty years of age.—*N. Y. Medical Abstract*, February, 1888.

Hemoglobinuria from Walking.

At the meeting of the Société Médicale des Hôpitaux of Paris, April 13, 1888 (*Bulletin Médical*, April 15, 1888), M. Paul Robin stated that the published cases of hemoglobinuria, which had been provoked by walking, are extremely rare, and do not present anything of a very precise nature bearing upon the

origin of this obscure disease. He then referred to a patient, 16 years old, in perfect health and with no hereditary tendency to the disease, who repeatedly had attacks of hemoglobinuria following a walk of several thousand yards. Under treatment with rest, tonics, arsenious acid, and regulated diet he greatly improved, but still a walk of several miles in a mountainous region would bring on a short attack. Several examinations of the urine before the attack showed that it was normal.

Robin thinks that the causation in this case points to a renal origin of the disease. The serum of the blood maintains its normal coloration during an attack, and reveals no trace of hemoglobin upon spectroscopic examination. The kidney origin of the disease is further indicated by finding in the sediment of the urine at the outset of the attack a large quantity of organic *débris* of a brown color, together with white corpuscles, and black pigment.

A second point to be noted is the expulsion at the crisis of the attack of hemoglobinuria of a fibrinous mass, still soft, but already incrusted with uric acid and oxalate of lime. Robin suggests that possibly this fibrinous mass would eventually have formed a stone in the kidney, and that the fatigue of a long walk, bringing about an attack of hemoglobinuria, so resulted in the discharge of the mass.

Upon Cauterizations of the Throat in Diphtheria.

Speaking of this subject editorially, the *Boston Med. and Surg. Journal*, March 8, 1888, says: As to the value of local treatment in this disease, there can hardly be said to be any difference of opinion, and all authorities advise cleansing and disinfectant topical medication. Some, as Billington, Jacobi and Smith, rely largely on sprays, gargles and syringing; others, as Liebermeister, make great account of local applications of sulphur.

With regard to energetic cauterizations and the frequent clearing of the throat of false membranes by swabbing, there has of late years been a general agreement among medical authorities in avoiding these harsher methods, and for the following reasons:

1. Experience has proved that the violent removal of false membranes does no good, the diphtheritic patches being speedily re-formed. Only when the patches are already loose and ready to separate of themselves, is their removal by the brush or swab really beneficial.

2. The milder caustics, as nitrate of silver and perchloride of iron, do not penetrate deeply enough to destroy the multiplying infection, and their frequent application adds to the discomfort of the patient.

3. The stronger caustics (undilute carbolic acid, muriatic acid, caustic potash) are very painful, not easily limited in their action to diseased parts, and are likely to cause dangerous swelling of the tissues.

4. Add that the patient is often a young child, whose opposition and whose struggles make the difficulties in the management of caustic applications well-nigh insurmountable.

5. Finally, cauterization of the throat in children has often provoked spasm of the glottis and death from asphyxia. It has also caused lesions of continuity of healthy parts, which have been speedily covered with false membranes.

These considerations, and the results of treatment by cauterization, which have not been encouraging, have led most authorities to renounce caustic agents altogether.

Case of Raynaud's Disease.

W. J. PENNY, F.R.C.S., reports a case of Raynaud's disease in the *Bristol Medico-Chirurgical Journal*, March, 1888. The patient was a groom, 25 years old, who came to the Bristol General Hospital, October 31, 1887, complaining of sore ears. He had suffered from rheumatism for ten years. His father died of rheumatic fever. The patient looked to be more than 40 years old. He had a marked earthy, cachectic appearance; his forehead was low, and rather bossy; bridge of nose depressed; teeth peg-shaped and notched; fissured scars at the angles of the mouth. His heart-sounds were feeble, but no bruit was heard. The urine was acid, and contained a trace of albumin.

One week before admission the left ear became painful; and, the day after, the right ear. They then became blue and numb. The condition gradually increased to that presented on admission. On the top of the left ear was an oval patch, one inch long, one-half inch across, which was black and gangrenous. The adjoining skin was purplish-yellow, and very tender. A similar condition existed on the right ear though not quite so well marked. The fingers and toes were cold, dark-bluish red and congested. The wrists and fingers were swollen; and the wrists presented the puffy appearance seen in hard-worked horses' fetlocks, due to chronic teno-synovitis.

Raynaud describes the disease as symmetrical gangrene, due to irritation of the excito-motor centre in the cord which presides over the vaso-motor nerves. He attributes the local mischief to cramp-like contractions of the smaller arteries, due to this irritation.

In the present case Mr. Penny says that all the symptoms of congenital syphilis were present in a marked degree, and the gangrene appeared to be due to paralysis of the vaso-motor nerves, possibly a later stage of that described by Raynaud. The weather at the time was seasonable for October, not excessively cold.

The Natural History and Epidemiology of Cholera.

SIR JOSEPH FAYRER, in the annual oration before the Medical Society of London, May 7, 1888 (*Medical Press and Circular*, May 9, 1888), selected as his subject, The Natural History and Epidemiology of Cholera. He thinks that experience and observation warrant the statement of the following propositions as facts: 1. That cholera has been present in India and other countries from the earliest times, and that isolated cases occur in almost all countries. 2. That cholera is always present, not only in certain parts of India, but elsewhere, and that in India outside these areas its prevalence varies in different years and according to the season of the year. 3. That cholera does not attack all the places within an epidemic area. 4. Meteorological changes produce sudden alterations in the activity and intensity of an outbreak. 5. That the rate and direction of an epidemic are not influenced by facilities of communication or by the greatest streams of human traffic, the opening of the Red Sea route, *e. g.*, not having increased its diffusion. 6. That the cases are more frequent and more

severe at the commencement, than in the continuance of an outbreak. 7. That hygienic measures afford the greatest security, but are not an all-powerful safeguard against cholera; local insanitary conditions and impure water favor its incidence and increase its intensity; that it is important to check all diarrhœa in times of cholera prevalence. 8. That cordons and quarantine have utterly failed to prevent the spread of cholera, but, on the contrary, have done harm. 9. That to enter an area over which cholera is present, or to travel within that area, is especially dangerous to a new-comer, while residents whose circumstances of living are favorable have a better chance of escape. 10. That removal is the best course when cholera attacks a regiment or other body of men. 11. That attendants on the sick have not suffered more than others. 12. That impure water, irritating articles of diet, unripe fruit, saline aperients, are liable, during cholera prevalence, to bring on diarrhœa and the disease. 13. That fatigue, exhaustion, fear and anxiety are powerful predisposing causes. 14. Many circumstances attending the outbreak of the disease and the pathological conditions then developed seem opposed to a specific poison as being the cause of the disease. 15. Having suffered from cholera gives no immunity from recurrence of the disease.

Corpulence and its Attendant Evils.

Professor E. Heinrich Kisch, of Prague, has contributed to the *Deutsche Medizinal-Zeitung* an article on the cosmetic therapeutics of corpulence, and he justifies himself in viewing the evils of corpulence from the cosmetic point of view with the reflection that it is commonly not the involvement of the general health that leads corpulent persons to seek for medical advice, but the disfigurement that obesity entails. Foremost among the blemishes to which it gives rise he ranks excessive size of the breasts in women, which, as he has often observed, leads them to undergo dietetic and medical courses of treatment so severe as to bring about a sort of marasmus. He alludes to the advice given by Galen and Cælius Aurelianus to the Roman ladies thus affected to use poultices of Lemnian earth, and adds that the fashionable ladies of Paris endeavor to restrict the growth of their breasts by compressing them with hemispherical cases. But he has not found compression to be of any avail, and he advises against the internal use of preparations of iodine, for, although it reduces the size of the breasts, it does so at the expense of the general health. Local applications are more to be recommended, especially an ointment composed of about fifteen grains of iodoform deodorized with Tonka beans, half an ounce of vaseline, and two drops of oil of peppermint. This is to be rubbed into the breasts, and they are then to be swathed with linen moistened with a warm solution of one part of alum and five parts of acetate of lead in a hundred parts of distilled water, impermeable paper being laid over the whole. The dressing should be changed night and morning, and its use should be continued for several weeks. To prevent flaccidity and wrinkling of the breasts as the fat disappears, he prescribes frictions with some aromatic spirit and suspension of the organs with a bandage.

It is in the abdomen that corpulence is the most obstinate. Here iodine applications are of little avail, and massage is most useful. The author commonly prescribes frictions with a solution of potassium iodide in twenty parts of vinegar of squill and the constant use of a girdle, preferably of deerskin. The excessive

sweating of the corpulent is best treated by the local and general application of cold water perfumed with simple or aromatic vinegar. The use of protective pieces of rubber, oiled silk, etc., in the armpits, is injurious because it interferes with the vaporization of the secretion and causes it to soak and irritate the epidermis. Irritations of the skin from chafing, as under pendulous breasts and in the fold of the groin, may be mitigated or prevented by dusting the parts several times a day with a powder composed of one part of salicylic acid and fifty parts each of Venetian talc and rice-starch. Over-activity of the sebaceous glands, comedones, rosacea, and brownish, rusty pigmentations are apt to accompany corpulence, and they are to be treated by measures aimed at the corpulence itself, especially careful regulation of the diet. For the baldness that is often associated with an excessive development of fat in young persons the author states that he knows of no good remedy.—*New York Medical Journal* May 12, 1888.

Rheumatic Orchitis.

Mr. W. J. Penny, F. R. C. S., reports the following case: J. B., 33 years old, came to the Bristol General Hospital, complaining of swollen and painful testicles. He was a married man, and had five healthy children. There was no syphilitic, traumatic or gonorrhœal cause for the disease, and he denied having caught cold. There was no family or acquired tendency to phthisis. Two days before admission he noticed that the left testicle was swollen and painful; and, the day after, the right testicle. For the fortnight previously he had suffered from aching pains about the body; and during the last week his hands had become swollen and painful. The right testicle was enlarged and very tender; the left markedly so, being about twice its natural size. The epididymis of both testicles was enlarged, as was also the cord. The greater part of the swelling was a soft solid; but a small quantity of fluid was found in each tunica vaginalis. Above the left testicle, and detached from it, was a tender, defined swelling, about the size of a walnut, with an elastic feel. A slight varicocele existed on both sides. From the acute onset and painful nature of the swelling, combined with the absence of gonorrhœa or traumatism, and the pain in other parts, rheumatic orchitis was diagnosticated. He was ordered a purge and fifteen grains of salicylate of soda four times a day. Five days afterwards both testicles were smaller and less painful; the swelling above the left testicle was reduced to half the size; the fluid in the tunicæ vaginales had become absorbed; the hands were better. He continued the treatment for a fortnight, and was discharged at the end of that time. The testicles had returned to their normal size; all the fluid had disappeared; the swelling above the left testicle could not be discovered; and the veins were much smaller, and there was no pain.

The author remarks that cases of rheumatic orchitis, pure and simple, are not common. Rheumatism frequently predisposes to and complicates orchitis, the exciting cause of which is generally gonorrhœa. In this case rheumatism appeared to be the sole cause; and the rapidity with which salicylate of soda relieved the condition was surprising. He had no local treatment.—*Bristol Medico-Chirurgical Journal*, March, 1888.

Recognition of Incipient General Paresis.

Dr. Ogden Bockus, formerly Assistant Physician to the State Lunatic Asylum of Utica, New York, contributes a paper on the recognition of incipient general paresis to the *Buffalo Medical and Surgical Journal*, January, 1888. He finds, from personal experience, that the disease is more frequent in man than in woman in the proportion of six to one. In addition to sex, age is a predisposing cause. It is most commonly developed between the ages of 35 and 50 years. The influence of heredity is doubtful. With reference to the causation of the disease, he says: "In my own experience with the cases in asylum life, sexual excess seems rather to have been one of the prodromic symptoms, and not a cause *per se* of the disease. In an analysis of fifty-four cases, I attribute the disease in twenty-six to excessive and prolonged mental strain and overwork, supported by alcoholic stimulants; in sixteen, to intemperance and irregular habits; in four, to syphilis; in one, to sunstroke; in the remaining seven the history furnished was so meagre as to render an opinion as to its causation little more than a guess."

In order to recognize general paresis in its incipiency, careful inquiry should be made into the habits of the individual, the temperament, family history, age, etc., all of which will greatly aid in diagnosis. The symptoms, especially in the early stages, are somewhat vague; the mode of commencement is generally gradual, although the disease may begin suddenly, an epileptiform seizure being the initial warning to the patient or to his friends; or motor symptoms may be the first observed; some slight embarrassment or hesitancy of speech is noticed, especially if under excitement; aural tinnitus, flushing and heat of face and head, due to vaso-motor disturbance. If, however, the intellectual powers be involved, a change occurs in the disposition and habits of the individual. He becomes forgetful, is inattentive, his business transactions are ill-judged; he may be moody, dull, apprehensive, suspicious, irritable, full of hypochondriacal fancies; his memory begins to fail, especially for recent events, and he is unable to apply himself thoroughly to any work. It may be that his sexual appetite is increased; and not infrequently, in taking the history of these cases, the wife of the individual will admit that for some time previous to suspicion of disease on the part of friends, her husband's sexual desire has been almost insatiable.

More commonly, instead of depression, there exists an expansive, speculative frame of mind. He is exalted, active, busy, full of chimerical schemes, elated, easily excited, unnaturally loud in conversation; many of his friends, indeed, believe that he has taken too much of alcoholic stimulants, for the change in manner is the same as an extra glass of whiskey produces. Although naturally reticent, he becomes loquacious, confidential, button-holes people on the street, relates matters of a private nature about his family, their prospects, what he intends to do for them, etc.; is sleepless, although he does not complain of insomnia. His appetite is good, and he digests his food well. Perversion of the moral sense is one of the most important of the prodromic symptoms, especially from a medico-legal point of view. For some time there may have been unwonted acts of indelicacy or impropriety. He may be led into all kinds of folly or crime, may make extraordinary purchases, commit thefts in the most open manner, and yet, aside from these changes, there is no absolute loss of

intellect; he may become a little duller, less initiative; perhaps, to the casual observer, appearing in his normal condition, but a characteristic feature is, with but few exceptions, that all these changes occur unnoticed by the patient. He affirms that he is healthier than ever before, and any insinuation to the contrary serves only to irritate him. In one case, the first symptom shown of this perversion of the moral sense, was the fact of the patient's deliberately rising from the dining-room table, urinating in the corner of the room, and returning to his seat as if nothing had occurred, much to the astonishment of those present.

The motor symptoms are always to be most relied upon in making a diagnosis, and especially the character of the speech, and the slight fibrillary trembling of the tongue and muscles of expression, which quiver at times as if the individual were about to burst into tears. He does not articulate plainly, especially those words abounding in consonants; he drawls, slurs his words, as if there were some difficulty in bringing them out. The muscles about the alæ of the nose, and indeed, in marked cases, all the muscles of the face, may be involved. When the tongue is protruded, it is generally with a jerk, although this symptom is usually more marked in the later stages. These motor symptoms are of grave omen, and may not be noticed if the patient be calm and collected, but they manifest themselves under excitement, and often, in examination, it is necessary to irritate the patient in order to bring them out clearly. The finer movements suffer, as seen in the handwriting, which is sometimes shaky and irregular—letters, and even words, being omitted from inability to concentrate the mind. In some few cases the individual, especially in the melancholic type of the disease, appears to recognize impending calamity.

Imprisonment and Phthisis.

In a recent clinical lecture on the therapeutics of phthisis, PROFESSOR ZIEMSSEN dwelt on the influence of imprisonment, with its confinement, want of fresh air and exercise, on the production of the malady, and pointed out that the most valuable means of prophylaxis was the avoidance of the confined air of rooms and insufficient muscular exercise. This led directly to the question why prisoners were not kept at work in the open air, "why were they crowded together in work-rooms?" adding in words that will bear repeating, "If it is possible to keep the deranged at agricultural work under supervision, why is it not possible in the case of prisoners? Why are not prisoners allowed to practise gymnastics and other bodily exercises?" It is certainly not the intention of legislators that the criminal who, for the protection of society, is removed out of it, should in the process be made ill and die. The legislator wished to punish and correct, not to render sick and kill. As matters stand at present, however, and always have stood, a sentence of five, ten, twenty years, or for life, or solitary confinement, is in reality a sentence to incur a great danger of the supervention of phthisis. Prison hygiene is indeed infinitely improved, and by this improvement it has been brought about that grave epidemics of typhus, dysentery, scurvy, etc., which at one time decimated prisons, have disappeared. Tuberculosis alone has remained, and the mortality from it is extraordinarily high, three to four times what it is in the free population. In Millbank Prison, in England, between the years 1825 and 1842, 12 per 1,000 died of phthisis, whilst

in the city, amongst the free population of the same year, the mortality was only 4.37 per 1,000. In the years named, 205 prisoners died, 83 of whom died of phthisis, and in addition to these, 90 others were discharged on account of advanced tuberculosis. The same holds good in the Prussian goals. In that of Plötzensee, between the years 1873 and 1882, 139 prisoners died, of whom 91 (65.4 per cent.) died of phthisis, and 40 others were discharged before the expiration of their sentences on account of the disease. This state of affair occurs in almost all gaols. With relatively good hygienic conditions and a relatively very low general mortality, this enormous mortality from phthisis! And even these statistics of disease are not sufficiently high, as the autopsies on prisoners dying of other diseases show more or less advanced tuberculosis in them also, so that Baer as a prison medical officer gives it as his opinion that a non-tuberculous condition of the lungs of people dying in prison is infrequent, that it is to be looked upon as an exception to the rule. In estimating the causes of this disposition to phthisis, one point comes into consideration: it is not the prisons and penitentiaries in which prisoners breathe the impure common air of workrooms and dormitories that have the highest mortality from phthisis, but the cell prisons, and this in spite of the separation of the healthy from the diseased, and in spite of the facts that the relative cubic space in each cell is greater than in the common rooms, and that the air, floor, and walls are kept much cleaner. Here the infection with the ubiquitous tubercle bacillus can really depend only on the individual being shut out from the outer air and from muscular exertion in the open. That the food is much the same, and often insufficient, may not be disputed; the psychical factor also of loneliness, *ennui*, remorse, and the longing for freedom are not to be under-estimated. We believe, however, that with sufficiency of fresh air and moderate labor in the open, not only would the appetite and sleep be better, but the depression would also be considerably ameliorated. These considerations deserve the attention of the authorities, since the etiological factors are so clear that a change in the employment and the enjoyment of fresh air as the most essential influences in the avoidance of the blot are not to be avoided. The possibility of a change of the existing rate will not be contested by any one who is acquainted with the enormous improvements that have taken place in prison hygiene during the last fifty years.—*Medical Press and Circular*, May 9, 1888.

Gastric Epilepsy.

At the meeting of the Royal Academy of Medicine in Ireland, March 9, 1888, Dr. A. W. Foot made a communication upon gastric epilepsy. The patient, a young man, seventeen years old, had had a series of epileptic attacks for two years, induced by eating rich and indigestible things, or ordinary food in a rapid manner. His attacks occurred at meals, and in the dining-room, almost exclusively. He was seen by Dr. Brown-Séquard, and, after persevering in his treatment for five years, the seizures ceased to occur.

Dr. Finny mentioned the case of a young student in Trinity College, Dublin, who, crossing the Channel, had a supper of beefsteak about three o'clock in the morning on board the steamer. After breakfast he became the victim of a very severe attack of epilepsy. The cause proved to be undigested beefsteak, and there was no return of the disease. He had experience of another case of a

young man who had, when a child, suffered with scarlet fever. That youth, whenever the large bowel became loaded with animal food, became liable to epileptic seizures. Hence caution had to be adopted as to the kind of food he used, and he was placed on a regimen of milk and farinaceous food. Animal food taken for four or five days consecutively would produce epilepsy. Hence, in Dr. Foot's case, "gastric epilepsy" was a very good name, although, of course, it was epilepsy of reflex origin, arising from the stomach, that was meant.

Dr. C. J. Nixon said Dr. Foot's case was one of extreme interest in view of the important fact that an epileptic of five years had got completely well. When speaking of a reflex cause—such as a mass of food in the bowels—producing epilepsy, that was scarcely going far enough, having regard to the number of people who partook of undigested food and stimulants of all kinds with impunity. Therefore, it was not sufficient to direct attention to the peripheral irritation alone. A healthy person would not get an attack from a mass of undigested food in the bowels. There must be a peculiar condition of the cortex of the brain which, from irritation, set up the epileptic condition; and the special danger was that once it was developed it was apt to continue. A first seizure meant a probability of a second, and a second meant a greater probability of a third and so on. In alcoholic epilepsy when the patient returned to the stimulants he was liable to a second seizure, and specially so if he continued to drink. If then the source of peripheral irritation was removed, and the epileptic condition passed away, there were grounds for retaining the name "reflex epilepsy."

Dr. Cox mentioned the case of a school girl who, having been treated too generously by her friends, had an epileptic seizure which terminated in vomiting; and also the case of a youth in the period of adolescence in whom the same phenomena occurred, consequent on eating food hard to digest. Epileptiform seizures from alcohol had almost invariably a renal origin.

Dr. James Little said that Dr. Nixon had drawn attention to the most important practical point in Dr. Foot's paper, showing that though the physician might not be able by any therapeutic means to modify the tendency to the epileptic discharge, which existed in some portion of the brain, still the exciting cause of the discharge could be removed and thereby the patient saved from a recurrence of the attack. Thus there were two factors at work. Besides the irritation there was the mobile excitable condition of some portion of the brain which made it liable to discharge itself on slight provocation. Some twenty years ago he saw a boy, eight or nine years old, whose case left a great impression on his mind. The boy had had a succession of epileptic seizures. His father and mother were first cousins, and he had five uncles and aunts confirmed epileptics. Still it had occurred to him that the boy might have worms. Remedies were taken that dislodged a vast quantity of round worms. From that time to the present the young man, who is now 30 years old, has never had a recurrence of the epileptic seizure. If the worms had been allowed to remain sometime longer until the epileptic habit had been established, he would have been, like his uncles and aunts, a confirmed epileptic.

Dr. Foot, in reply, said the duration of his case was even more than five years. The first attack was August 12, 1876, and in 1880 the attacks ceased

and the patient was sufficiently well to discharge his duties in a public office. He remembered several cases in which there were but few attacks and complete recovery ensued. For instance, a schoolmate who was allowed the privilege of sitting up late preparing for first place at entrance to College was thrown back by a violent attack, and yet he never has had an attack since, and he is at present in command of a regiment.—*Medical Press and Circular*, May 9, 1888.

Acute Peritonitis successfully Treated with Saline Purgatives.

At the meeting of the Midland Medical Society, March 21, 1888, DR. SUCKLING showed a man twenty-one years old, who was admitted into the work-house infirmary, January 6, suffering with acute peritonitis. Three days before admission he was attacked with vomiting and pain in the abdomen; there was constipation. The abdomen was tense and tympanitic, and the abdominal respiratory movements were abolished. There was extreme tenderness above the abdomen, the legs were drawn up, the pulse small and frequent, the expression anxious. He had retention of urine and fever. No tumor could be detected in the right iliac fossa; vomiting was incessant, and pain about the umbilicus greatly complained of. Dr. Suckling thought that the peritonitis was set up by typhlitis, due to fæcal retention. Opium and belladonna were first given, but the vomiting and pain continued. Then half-drachm doses of sulphate of magnesium and sulphate of sodium, with ten minims of tincture of belladonna, were given every four hours. Improvement soon followed this treatment; several liquid motions being passed. On January 9, the vomiting, pain and tympanites had passed off, and a distinct fulness, with increased resistance to pressure, could be observed in the right iliac fossa. The medicine was continued, with the result that the motions became more and more solid till the 14th. He continued to complain of dragging pain in the abdomen for some time; but in about three weeks he was able to get up and five weeks after his admission was allowed solid food. He has since had two or three slight relapses, which at once yielded to purgatives and proper dieting; and at the present time there is a distinct indurated swelling in the right iliac fossa. Dr. Suckling is of opinion that in this form of peritonitis and in typhlitis due to fæcal retention, saline purgatives in moderate doses, with plenty of water, are of great value.—*Lancet*, May 12, 1888.

Treatment of Whooping-Cough.

At the meeting of the Medico-Chirurgical Society of Glasgow, March 23, DR. R. S. THOMSON read a paper on the treatment of whooping-cough, which led to a general discussion upon its treatment. Dr. Thomson's experiments were conducted in the wards of the City of Glasgow Fever Hospital, the observations being noted partly by himself and partly by the nurses in charge of the patients. In all cases there was a very decided tendency to improvement, apart from treatment, where no complication existed. The cases occurred in groups, varying from each other in the severity of their symptoms.

Sixty cases were treated with dilute nitric acid in twenty minim doses, administered every four hours, where the age was above two years, while under that age one-half and one-fourth of this dose was given. No improvement was

noticed in the symptoms that could be distinctly referred to the use of the drug. Liquid extract of ergot was used in the treatment of forty-nine cases. Ten minims were administered every four hours to patients under two years, and twenty minims when the patient was older. No benefit was derived from its use. Ninety-five cases were treated with chloral hydrate. Five grains were ordered every four hours to patients over two years, and two and a half grains under that age. No effect seemed to be produced upon the number of paroxysms, but their severity was distinctly mitigated. The tendency to convulsive seizures was reduced.

Dr. Fotheringham said he had not been without cases of whooping-cough for the past three years in Motherwell. In the early part of the epidemic he gave up the use of nitric acid and chloral, and substituted the extract of grindelia, in two minim doses, he believed with considerable advantage. He was certain that the number of coughs was diminished, and the vomiting was also lessened in two or three days. As an antipyretic, he had used antipyrine in five-grain doses.

Dr. Robertson, Hamilton, had had a great deal of experience of whooping-cough. He had tried nitric acid, the bromides, etc., but he did not find that any of them shortened the duration of the disease, which seemed to him to have a certain course to run like any other fever. For several years past he had treated whooping-cough more by attending to the general health, the condition of the bowels, and of the gums in young children, and by change of air where possible, from which the best results were obtained. Convulsions he believed to be due, in many cases, to the condition of the bowels and of the gums.

Dr. Turner had had a very considerable experience of whooping-cough while in practice abroad. At the beginning of his first epidemic, he gave nitric acid a very thorough trial, but he found it utterly useless. He then tried belladonna, and every case got rapidly well under that drug. When, therefore, several years later, he was again confronted with an epidemic of whooping-cough, he had recourse to belladonna with all confidence, but he found that it was quite useless. A drug might act very well in one epidemic, and yet apparently be of no benefit in another. He had come to the conclusion of the gentlemen who had already spoken, that there was no specific for whooping-cough. He treated his cases on general principles. He believed in the use of stimulating liniments applied over the chest and spine, and in change of air as soon as possible.

Dr. Middleton reminded the Society that several years ago Dr. Allan had read before them an elaborate paper on his experience of the treatment of whooping-cough at Belvidere. Dr. Allan had tried a large number of drugs, and had found none of them specific. Chloral seemed to do good only when pushed to the extent of narcosis. Dr. Middleton also referred to the largeness of the doses of chloral administered by Dr. Thomson. Resorcin had recently been recommended, either alone or in combination with cocaine, and he would like to know if any of the members had any experience of its use in whooping-cough.

Dr. Corbett, Barrhead, had had a good deal to do with whooping-cough. He had tried nitric acid, chloral, and belladonna without benefit. He had of late been much pleased with the good results obtained by the use of carbolic acid,

which diminished the frequency and the severity of the coughs, and seemed also to lessen the tendency to pneumonia. He had also seen benefit result from the administration of warm water.

DR. FINLAYSON said that, when he was in the Children's Hospital, Manchester, the opinion of the physicians there was that nitric acid had been tried and found wanting. His opinion was that belladonna had an undoubted influence on the convulsive attacks of whooping-cough, lessening the frequency and the severity of the paroxysms. The belladonna was given freely, in such doses as most would be inclined to say were dangerous. In those days the powdered leaf was regarded as more reliable than the extract, and to a child three or four years old as much as two grains were given, a dose which in an adult would give rise to very distinct physiological effects. About the time he left Manchester Hospital chloral came into use, and was extensively tried by his successor, who made out undoubted good effects in the direction indicated by Dr. Thomson. It diminished the violence of the attacks, and seemed to be specially useful in cases tending to convulsions, just as it was of use in those cases where convulsions had supervened. With regard to the bromides, he did not think they had any very powerful influence. Change of air had a distinct influence in cutting short the later stage of the disease. When Dr. Thomson went to Belvidere he was anxious for him to study there the effect of making the children inhale an atmosphere charged with various antiseptic vapors, suggested to his mind by the popular habit of taking children suffering with whooping-cough to gas-works. He was sorry that Dr. Thomson had not had an opportunity of studying this method of treatment at Belvidere.—*Glasgow Medical Journal*, May, 1888.

Differential Diagnosis of the Erythematous Syphilide.

DR. GEORGE H. ROHÉ, Professor of Dermatology and Hygiene in the College of Physicians and Surgeons, Baltimore, in a lecture on the erythematous syphilide published in the *Maryland Medical Journal*, April 21, 1888, gives the following differential diagnosis of this affection:

The erythematous syphilide is a frequent source of error in diagnosis. It may be confounded with measles, rötheln, scarlet fever, typhus and typhoid fevers, the prodromal erythema of small-pox, various erythematous eruptions due to the ingestion of certain drugs, non-specific erythemata, tinea versicolor, and ringworm.

Measles is always preceded by catarrhal irritation of the eyes, nose and air passages. The fever is also more marked than in the syphilitic exanthem. The eruption in measles is papular, the papules being closely aggregated, the patches having a crescentic arrangement. The face is usually first affected in measles, while in syphilis it is nearly always exempt from the eruption. From the face the the exanthem spreads over the whole surface of the body usually within twenty-four or thirty six hours. The development of the syphilitic eruption is never so rapid as this.

From rötheln, the erythematous syphilide may be differentiated by the bright color of the former eruption, its papular character, and its brief duration. The eruption of rötheln appears rapidly, and fades away again in a day or two. The rash is also more profuse than the syphilitic exanthem.

Scarlet fever has such a characteristic clinical history that it would seem that no difficulty could arise in the differential diagnosis between this disease and the erythematous syphilide. The points of distinction are the high temperature, uniform, confluent and extensive eruption, and scarlet color of the latter. The comparative freedom of the face from the eruption and the anginose symptoms may lead to error, if the other marks of distinction are not borne carefully in mind.

The rose colored eruption in typhoid fever may simulate the erythematous syphilide. The distinct lenticular character of the eruption and the sparseness of the lesions, together with the other clinical symptoms of typhoid will however serve to distinguish the two affections.

The mottling of the skin and the macular eruption in typhus fever could be readily mistaken for the erythematous syphilide if the presence of the fever and the profound disturbances of function in typhus could be overlooked. The clinical features of this fatal disease are so marked, however, that no such mistake in diagnosis as here indicated ought ever to occur.

The prodromal erythema of small-pox is usually limited to the lower portion of the abdomen, the genital region, and the upper third of the thighs. It is bright red, equally diffused and not disseminated in spots. There is usually high fever also.

One of the erythemata not infrequently mistaken for the erythematous syphilide is the eruption sometimes following the ingestion of copaiba and cubebs. So frequently does this eruption follow the use of these drugs that some writers, notably Cazeneuve, taught that gonorrhœa is accompanied by an eruption resembling one of the syphilides. It is now established, however, that this "gonorrhœal erythma" occurs only in those patients who are taking copaiba, cubebs, or drugs of similar character. Accompanying such a common venereal disorder, and therefore extremely liable to cause errors in diagnosis the differentiation of this eruption demands some attention. The copaiba rash appears suddenly and rapidly becomes confluent, and may cover the entire surface of the body like a sheet. Usually, however, the patches are grouped in localities where the skin is subjected to pressure, as for example about the neck, wrist, waist, etc. The face is not exempt. The eruption is accompanied by violent itching and burning, and there is generally some heat and tumefaction of the skin, symptoms which are absent in the erythematous syphilide. The eruption disappears in a few days if the drug is omitted.

In exceptional cases the administration or external application of mercurials may cause an eruption bearing some resemblance to the erythematous syphilide. Cases have been reported by Zeissl and Bäumber. It seems to be extremely rare. Benzoate of sodium, antipyrine and some other drugs may also cause an erythematous eruption, but in the former case the rash is especially localized about the face, while the antipyrine eruption is usually very itchy. Erythema multiforme in its varied manifestation is usually easily diagnosticated from the erythematous syphilide. The non-specific eruption occurs in large patches with crescentic margins, appears, runs its course and disappears in a few days, and is especially localised about the backs of the hands, wrist and ankles, parts especially exempt from the syphilitic eruption.

The eruption that is most frequently mistaken for the erythematous syphilide,

is tinea versicolor, one of the parasitic skin diseases. The localization of the eruption, its appearance, absence of fever and subjective symptoms and its chronicity all combine to give it a close resemblance to the specific eruption under consideration. The points of distinction are the absence of a history of syphilis, the desquamation, the generally darker pigmentation, and the limitation, usually, of the eruption to the trunk, in the parasitic affection. A positive means of distinction is the recognition of the mycelial elements, and spores of the *miscrosporon furfur* in the scales when examined under a microscope.

In recurrent erythematous syphilide limited to the prepuce and glans, or the vulva, the eruption may give rise to the impression that it is a case of simple balanitis, or vulvitis, or on the other hand, as already mentioned, the erosions produced may be considered as primary syphilitic lesions, which impression may be strengthened by subsequent infection of healthy persons during the sexual embrace. The annular form of the recurrent syphilide may be mistaken for erythema annulare or tinea circinata. The former is characterized by its localization, which is nearly always on the backs of the hands, while in the latter, the mycelial elements and spores of the trichophyton tonsurans can nearly always be found on careful microscopical examination.

Case of Recurrent Macular Syphilide.

Dr. T. H. Rockwell, House Physician, Charity Hospital, New York, says: On account of the extreme regularity with which the early symptoms of syphilis present themselves, it is interesting to the profession to note any deviations from the usual order of events. Perhaps the most constant symptom after the initial lesion is the development, in from four to eight weeks, of the syphilitic roseola. The course, duration, and time of appearance of this eruption is not the same in all cases, for it may be influenced by the food, drink, moral habits, and physical condition of the patient, and when treatment is early begun it may greatly modify the character of the eruption; but never, according to the commonly accepted theory, does it entirely prevent its occurrence, although the erythema may be so slight as to be barely perceptible, especially by the patient. The roseola ordinarily appears but once in the history of the case, although relapses may occur, but in this event the eruption usually coexists with a papular or vesicular syphilide, and there generally remain some traces of the previous erythema. Cases in which a macular syphilide occurs several months after a previous similar eruption are very rare, and their existence has even been denied by some authors. The following case, therefore, possesses considerable interest: M. K——, thirty-three years old, was admitted to Charity Hospital in May, 1887, and had at that time a venereal sore, which had nearly healed, on the upper part of the right labium majus. This sore was first developed about the middle of April, and had previously been treated as a chancroid, but there was a slight amount of induration about it when she entered the hospital. There was also a vulgo-vaginal abscess of the right labium, which was opened, and a small quantity of pus was evacuated. The abscess was dressed with iodoform, and healed kindly. During the second week in May there appeared a well-marked macular eruption, bright red in color, the spots being from one-fourth to one-half an inch in diameter, extending over the entire body, commencing first on the abdomen and thorax, and

extending thence to the extremities. Coexisting with the roseola was an intense iritis of both eyes, also marked alopecia, and inguinal, epitrochlear, and cervical glandular enlargement. There were rheumatic pains about the joints, and mucous patches were discovered in the mouth. There was but slight laryngitis. The pill of the protoiodide of mercury, two-fifths of a grain, was given three times daily, and a solution of atropine instilled into each eye. Soon after commencing this treatment she improved rapidly, and finally the symptoms disappeared, except the glandular enlargement, which, although reduced in size, could still be felt. The eruption faded, leaving slightly pigmented spots in the skin. As all visible manifestations of the disease were gone, the patient left the hospital in the the latter part of June.

On March 3, 1883, after a debauch of three days, nearly ten months after the roseola first appeared, she noticed a well-marked eruption on her body. While absent from the hospital she had taken no medicine at all, except an occasional dose of Epsom salts, nor had she become overheated, and the undergarments were of old white flannel, not irritating to the skin. As soon as the eruption was discovered she came at once to the hospital, where an extensive macular syphilide was found over the entire body, except the face. The spots were of a pale red color, level with the surrounding surface, disappearing on pressure, and accompanied with no pruritus. The skin had shown no papules, squamæ, or vesicles, the well-marked macular eruption being the only local manifestation. Soon after the appearance of the eruption, the alopecia, which had at one time nearly ceased, began to be quite marked, and rheumatic pains in the joints were developed. Her general condition was good, there being no constitutional disturbance at the time the eruption was developed. She was put upon a mixed treatment of the biniodide of mercury and potassium iodide, which caused the eruption to fade away, so that three weeks later there remained only a coppery stain on the surface of the skin. With the exception of these two macular eruptions, the patient has never had any cutaneous manifestations of syphilis, although the time for the papular eruption to commonly appear had long passed before the second macular syphilide was developed; nor was she at that time receiving any treatment which would retard the production of the papular eruption.

A recent writer has made the statement that "the phenomena of syphilis are most regular in their occurrence." Ordinarily they are, but the above illustration shows an exception to the rule, and proves, moreover, that it is possible to have an early lesion appear much later in the disease than is usually the case.—*Medical Record*, May 12, 1888.

Treatment of Consumption by Residence at High Altitudes.

At a recent meeting of the Royal Medical and Chirurgical Society, Dr. C. Theodore Williams read a paper on the results of the treatment of pulmonary consumption by residence at high altitudes, as exemplified by an analysis of one hundred and forty-one cases, of which the following is an abstract (*Lancet*, May 12, 1888):

The author offers a contribution from his own practice of one hundred and forty-one cases of phthisis treated in sanitaria varying in altitude from five thousand to nine thousand feet—in the Alps, the Rocky Mountains, and the South

African Highlands—during the last nine years, in order to deduce certain practical rules therefrom. The one hundred and forty-one cases have been tabulated for statistical purposes under the following headings: Sex; age; length of illness before the commencement of mountain residence; hemoptysis; history and nature of cases; state of the lungs; medicine and diet; length of residence at high altitudes. The Alpine climate is then compared with that of Colorado and the South African Highlands. The results of this treatment have been tabulated under the heads of *general* (referring to the general health, vigor and weight) and *local* (including the conclusions arrived at from the examination of the lungs). The general results are divided into (1) cured, 41.13 per cent., where the restoration to health was complete; (2) greatly improved, 29.78 per cent.; (3) improved, 11.34 per cent.; (4) deteriorated, 17.02 per cent.; thus giving a total of 82.25 per cent. improved and 11.34 per cent. deteriorated, including 13.47 per cent. of deaths. The local results of the one hundred and forty-one cases yield improvement, greater or less, in 74.82 per cent. (including arrest in nearly 44 per cent.), deterioration in 21.5 per cent., and a stationary condition in 3.59 per cent. Among the first-stage cases there was improvement in 91 per cent., and arrest of disease in 63 per cent., with deterioration in nearly 7.5 per cent. Cases o unilateral first-stage gave 92 per cent. improved, and 70.5 per cent. of arrests; and cases of bilateral affection yield 87.09 per cent. of improved, and 48.38 per cent. of arrests. In the second and third-stage cases there was improvement to a greater or less extent in 46 per cent., arrest in 10 per cent., and deterioration in 46 per cent. Single cavity cases gave better results than cavity cases with the opposite lung involved, and left-lung cavities showed a less tendency to change, either for better or worse, than the right-lung ones. The following conclusions are arrived at: 1. That prolonged residence at high altitudes produces great improvement in the majority of consumptive patients, and complete arrest of the disease in a considerable proportion, such arrests being in a more or less degree permanent. 2. That, in order to secure these advantages, patients must be free from pyrexia and all acute symptoms, and must possess sufficient lung surface to adequately carry on the process of respiration in the rarefied atmosphere. 3. That the influence of the climate seems to promote a change in the lungs, either of a curative or destructive character, and to oppose quiescence. 4. That residence at high altitudes causes enlargement of the thorax, hypertrophy of the healthy lung tissue, and the development of pulmonary emphysema around the tubercular lesions, and that this expansion of the chest is accompanied by diminution of the pulse and respiration rate. 5. That it is probable that the arrest of consumptive disease is partly owing to the pressure exercised on the tubercular masses by the increasing bulk of the surrounding tissue. 6. That the above local changes are accompanied by general improvement shown in the cessation of all symptoms and the gain of weight, color, and of muscular, respiratory and circulatory power. 7. That consumptives of both sexes benefit equally by mountain residence, but that the age of the patient exercises considerable influence on the result. 8. That the high altitude treatment seems to be especially adapted to cases in which heredity and family predisposition are present. 9. That the climate is useful in cases of hemorrhagic phthisis, and that hemoptysis is of rare occurrence at the moun-

tain stations. 10. That mountain climates are most effective in arresting phthisis when the disease is of recent date, but they are also beneficial in cases of longer standing. 11. That the special effects of high altitude residence on the healthy and sick are common to all mountain ranges of elevations of five thousand feet and upwards. 12. That, to insure the full advantages of high altitude residence, a period of at least six months is necessary in the majority of consumptives. In cases of long standing and extensive lesions, one or two years are often requisite to produce arrest of the disease. 13. That, in addition to the above examples, mountain climates are beneficial in (1) cases of imperfect thoracic and pulmonary development; (2) chronic pneumonia without bronchiectasis; (3) chronic pleurisy, where the lung does not expand after removal of the fluid; (4) spasmodic asthma without much emphysema; and (5) anæmia. 14. That they are contraindicated in the following conditions: 1. Phthisis with double cavities, with or without pyrexia; 2. Cases of phthisis where the pulmonary area at low levels hardly suffices for respiratory purposes; 3. Catarrhal phthisis; 4. Erethitic phthisis, or phthisis where there is great irritability of the nervous system; 5. Emphysema; 6. Chronic bronchitis and bronchiectasis; 7. Diseases of the heart and greater vessels; 8. Affections of the brain and spinal cord, and conditions of hypersensibility of the nervous system; and, 9. Where the patients are of advanced age, and where they are too feeble to take exercise.

Dr. Bowles discussed the pathology of sun-burning, and thought that the causes of it had some share in the improvement of phthisical patients. He argued that the reflected light from snow was a potent cause of sun-burning, far more important than heat-rays or the atmosphere. The ultra-violet rays with most chemical action probably were chiefly causative of it. He found that painting the face with a brown pigment prevented sun-burning.

Dr. Hermann Weber gave a few of the results of his own statistics of one hundred and six cases treated at high altitudes. Of these, thirty-eight were cured, forty-two improved, sixteen stationary, and ten deteriorated. Of seventy in the first stage, thirty-six were cured, twenty-eight improved, eleven stationary, and six grew worse. Of thirty-two in the second stage, two were cured, thirteen improved, eleven stationary, and six deteriorated. Of four in the third stage, one improved, one remained stationary, and two deteriorated. While granting that high altitudes did thus effect great good, Dr. Weber pointed out that equally good results might be obtained at lower levels if systematic medical and dietetic treatment were carried out, as at Falkenstein, near Frankfort. From this place, which is only about two thousand feet above sea-level, Dettweiler's statistics (which are perfectly reliable) prove this conclusively. In Dr. Weber's cases the gain in weight was observed in fifty-eight cases; weight remained stationary in forty, and eight lost flesh. It was remarked, however, that patients could be well nourished before being sent to high altitudes, so that a gain in weight might thus be anticipated by previous treatment.—*Therapeutic Gazette*, June 5, 1888.

The Use of Pichi in Chronic Cystitis.

In the *Virginia Med. Monthly*, March, 1888, Dr. Ramon D. Garcin reports the case of a man, 20 years old, in whom vesical catarrh existed as the consequence of acute gonorrhœa. The urine was alkaline in reaction, and on settling divided

"into two parts—a lower, thick, turbid, gelatinous, coherent and opaque mass, the supernatant layer being clear." There was frequent micturition, with the passage of only a small quantity of urine, and a dull, aching pain over the vesical region. The diet was restricted so far as to exclude all stimulating food and any excess of fat. Washing out the bladder, the author states, could not be resorted to, and all the various remedies, such as eucalyptus, belladonna, buchu, tincture of iron, cantharides, copaiba, hydrastis, etc., were used, but with signal failure. Fluid extract of pichi was then used, twenty drops three times a day, for three days, and then thirty drops. Still the ergot was injected morning and night for the gleet. The urine at the end of this time was clearer, and the gleet was decidedly lessened. The pichi at the end of the week was continued in greatly increasing doses until fifty drops three times daily were reached. The urine at this time was clear and cloudless, and all treatment was stopped. The patient continued to improve, and the author says that up to this time there has been no return of the symptoms.

IV. OBSTETRICS, DISEASES OF WOMEN AND CHILDREN.

Kephir as a Food for Infants.

DR. H. LONGSTREET TAYLOR concludes an article in the *Archives of Pediatrics*, May, 1888, with the following directions as to the use of kephir as a food for infants:

1. If the infant is less than a month old give it diluted one-third with water. This proportion may be gradually lessened until at from four to six weeks of age it is given undiluted.

2. It should be fed slowly from a simple, easily-cleansed nursing bottle.

3. When used it should constitute the only food, except in children over a year of age, when crackers, toast, etc., may be given with it, and one meal a day can with advantage consist of oatmeal mush or other farinaceous food.

4. For young infants it is best adapted when given in its young or weak state. As the child grows older the medicine or even the old kephir may be used.

Its greatest usefulness is in cases of infantile atrophy and of chronic diarrhœa, and it will undoubtedly prove to be a valuable addition to our resources in the care of hand-fed infants.

Treatment of Chronic Bronchitis in Children.

DR. THOMAS J. MAYS, Professor of Diseases of the Chest in the Philadelphia Polyclinic, in a communication to the *Medical News*, March 17, 1888, says: A good deal is said in our text-books on the treatment of acute bronchitis in the child and in the adult, but there are cases constantly occurring in the practice of every physician which do not fall under the description of the acute form of this disease, and which pursue rather a chronic or subacute course. A child from two to ten years old, and even younger, is brought before you, who has had a cough for some time, which is accompanied by yellow expectoration in the morning, but is of a lighter color during the day. The child is able to be about, but its respirations are accelerated, and are short and shallow; the pulse is quickened; there is occasionally a flush in the face; probably a slight rise in temperature; night sweats; loss of flesh; dyspnœa; poor appetite; coated tongue; and the presence of general debility. On inquiry you will find that some months previously the child contracted "a cold," or had an attack of measles, or whooping-cough, from which it made an imperfect recovery and consequently has not felt well since.

Palpation of the chest probably reveals a fremitus over the central portion of the chest, both anteriorly and posteriorly; there is no dulness, but rather increased percussion resonance, and a roughened, blowing respiration is heard

over the whole chest which may be accompanied by rhonchi, mucous and sibilant râles, audible especially in the morning after rising. Coughing will remove the râles, but not the blowing breathing.

Quite an extended experience in the treatment of these cases teaches us that persistent counter-irritation is of the first consideration. If there is much impediment to the ingress and egress of air, or, in other words, if there is much dyspnœa, the child is at once placed in bed, the chest is enveloped with a hot flaxseed meal poultice (covered well with oiled muslin) which must be changed every three hours. In most cases, however, it is not necessary to order the child to bed, and counter-irritation is produced with a mild croton oil liniment. Croton oil and sweet oil, well mixed in the proportion of one to two parts of the former to six of the latter, is well rubbed into the skin of the child's chest—in front, under the arms, and between the shoulder-blades, not with a flannel or cloth, but with the mother's or nurse's fingers, twice a day, and then the chest is well covered with a layer of cotton-wool. It is important that as much as ten or fifteen minutes be spent in rubbing the liniment well into the skin, after which the hands must be thoroughly washed. In the course of four or five hours a red blush of the skin will appear, ending in fine, yellow-pointed pustules. Simultaneous with this eruption the cough becomes easier, the expectoration more free, the dyspnœa less—in fact the most remarkable change will be brought about in the little patient. Our attention was first called to the usefulness of this application by Dr. Park in a short contribution to the London *Practitioner* for March, 1882 (p. 170), and although he principally recommends it in acute bronchitis, we can say that we have found it as useful in the form of bronchitis here described as he did in the acute form of the disease. Indeed, we may add that we have also given it a fair trial in acute catarrhal affections of the chest in children and never had any reason to feel disappointed with its action.

The internal treatment must be directed toward a stimulation of the bronchial mucous membrane, and toward a recovery of the appetite. The former will be attained in a great measure by the following combination:

R.—Ammoniæ muriat.....ʒj
Ex. euphorbiæ pil. fid.,
Tinct. digitalis.....āā f ʒ iij.
Atropiæ sulph.....gr. 1/60.
Chloroformi.....gtt. xij.
Syr. tolut.
Syr. picis liquid.....āā f ʒj.
Aquæ.....q. s. ad. f ʒ iv. M.
Sig.—One teaspoonful every three hours.

For the purpose of aiding digestion, and as a general tonic the following will be found useful:

R.—Acid. phosphorici (dil.),
Acid. nitromuriatici (dil.),
Acid. sulphuric. aromat.,
Tinct. ferri chloridi.....āā f ʒss. M.
Sig.—Thirty drops in sweetened water after each meal three times a day.

The diet should be exceedingly liberal, although no food must be allowed which is likely to disagree. Our main reliance must be placed on rich milk, soup, oatmeal, beef, mutton and other kinds of nutritious food. At no time during the treatment is it necessary to confine the child within doors during pleasant weather. Indeed, out-door exercises should be encouraged as much as possible.

Tuberculous Meningitis.

In a paper in the *Journal de Médecine*, October 16, 1887, OXLEY gives the following as his conclusions:

1. Tuberculous meningitis is not a disease *per se;* but since the effusion into the ventricles, if abundant, causes a fatal result, this phase of tuberculosis deserves close study.

2. The effusion into the ventricles is the consequence of occlusion of the vessels by the development of tuberculous nodules in their walls.

3. The disease seldom occurs after the tenth year.

4. Prophylaxis is all-important. Every change in the condition of a child should be noted, and the state of the pulse and temperature should be carefully watched.

5. Tuberculous meningitis is not caused by over-exertion of the brain. Confinement in a poorly-ventilated room or overuse of the brain may lead to nervous exhaustion, and the result of this, in a child with phthisical tendency, may be tuberculosis, but not necessarily a fatal tuberculous meningitis. As many children under the age of ten years, who are also too young to go to school, die from this disease as die from the numbers of those attending school.

The microscopical investigation of these cases shows that, in the tuberculous conditions of the brain, the point of departure for the accomplishment of infection is a cheesy mass, the infectious matter being probably carried by the vessels.—*Archives of Pediatrics*, April, 1888.

Treatment of Acute Tonsillitis in Children.

DR. FRANK POTTER, Lecturer on Laryngology in the Medical Department of Niagara University, in a paper on acute tonsillitis in children, says that when an inflammation attacks the tonsil, it is influenced in its progress by those constitutional states which so markedly affect the natural history of disease. Hence, it is important to recognize the presence of syphilis, tuberculosis, rheumatism, etc., in the constitution of any patient under treatment for a tonsillitis. In children, these diseases may be latent, but, none the less, they have a potent influence over the course of the malady under consideration. Therefore, we should always make ourselves familiar with the natural history of the parents, and, if any of these diseases are found, so modify our treatment as to meet and counteract whatever of baleful influence may have been transmitted to the child. The author proposes no routine practice, he says the treatment must be so modified as to meet the hereditary and acquired variations from health in the particular case under consideration.

An inflammation may limit itself entirely to the tissue immediately surrounding the tonsil, producing the so-called peritonsillitis of some authors; it may express itself in the superficial parts, and become the erythematous tonsillitis of others; it may be deep-seated, involving the parenchyma, and is then called parenchymatous tonsillitis, or the true quinsy of the old writers; and again, the brunt of the inflammation may be confined to the lacunæ, and then the disease is called follicular tonsillitis. Dr. Potter believes that this is the same inflammation, modified according to the constitutional state of the patient, the kind and severity of the exposure, and so on. As an illustration, he says that it has been observed that the variety of tonsillitis called parenchymatous occurs with great

frequency in rheumatic subjects, and treatment followed in recognition of this fact—as the exhibition of the salicylates, salol, etc.—has resulted in prompt relief. In the treatment of a case of simple tonsillitis, by which is meant one uncomplicated by any other disease, and uninfluenced by the presence of any diathesis, we have to deal with a sthenic inflammation—one that develops very rapidly, and continues at a great height for some days. The plain indication, he says, is to control the production of this heat, to so influence the nerve centers as to make a high temperature impossible. This is done by the exhibition of antipyretics. So much for the general treatment. The next indication is to relieve the local distress. When the mucous membrane of the mouth and throat is inflamed, the secretion therefrom is highly acid. This acid secretion acts, in time, as an irritant, and keeps up the local disturbance. The indication is to apply alkalies to the surface of the tonsil, to neutralize the acidity of the secretions, and relieve the inflamed surface of this great source of irritation. In speaking of the details of this treatment, he says, the various antipyretics may be used according to personal choice, but he has come to rely principally upon antifebrine. This is to be given in five grain doses every hour until the temperature falls to nearly normal, and then at such intervals as are necessary to prevent it rising again. He has never been obliged to give more than three doses in order to accomplish the first indication; generally two doses have been sufficient. In children, the minimum dose according to age should be given, and the patient carefully watched. Occasionally, it will be found to have a depressing effect, and must be abandoned for one of the other antipyretics. The local treatment can, he says, be applied in several ways. Bicarbonate of sodium can be dusted upon the tonsils by means of an ordinary powder-blower, or a solution, ten grains to the ounce of water, can be sprayed on the parts by means of an atomizer, or, when the patient is of sufficient age, he can be instructed to dip the finger into the powder and touch the surface of the tonsil with it, or he can hold the solution in the mouth, allowing it to bathe the parts for a few moments. This local treatment should be used frequently, say at intervals of an hour, during the day.

He concludes his paper with the following propositions: 1. When an inflammation attacks the tonsil, it is greatly influenced in its course by the presence of any diathesis. 2. The treatment must be so arranged as to meet and counteract the influence of this diathesis. 3. In all cases, simple as well as complicated, the general indications are to keep down the temperature and to relieve the local irritation. 4. The first indication can be met by the exhibition of antifebrine in proper doses; the second by the frequent application of bicarbonate of sodium, either in powder or in solution, to the surface of the tonsil. 5. This plan, properly followed, will generally limit the disease to from one to three days.—*Buffalo Medical and Surgical Journal*, May, 1888.

Case of Arrested Fœtation.

Dr. John Morris, in a paper read before the Gynecological and Obstetrical Society of Baltimore, March 13, 1888, says: On March 5, 1887, I was called to see Mrs. L., thirty-two years old, the mother of three children. Mrs. L. had not menstruated for three months, and exhibited no symptoms of pregnancy. She had no morning sickness, which had been the case in other pregnancies; her breasts were not enlarged, and there was no apparent enlargement of the uterus.

By vaginal examination I could discover very little if any change in the cervix. The patient's health was very good, and I advised her not to trouble her mind as the suppression was perhaps but temporary. I was called about six months afterwards to see Mrs. L. She told me that she had not menstruated since I had last seen her, and that she had that morning passed a fleshy mass, without pain or hemorrhage. On examination this mass appeared to be of a fibrous character, and without critically examining it I formed the opinion that it was, perhaps, a sub-mucous fibroid tumor that had been thrown off from the uterus. Wishing, however, to be certain of its character, I submitted it to my friend Dr. Councilman, of the Johns Hopkins University. Dr. Councilman after examination reported to me that the growth proved to be an embryo of about four or five weeks, with some cystic formation and thickening in the placenta, to which most probably the abortion was due.

The only matter of interest in this case is that the woman should have had no constitutional disturbance—that she should have carried this blighted fœtus exactly to the full term, and that it should be then thrown off without pain, hemorrhage or other symptoms.

Midwifery without Ergot.

In the *Southern California Practitioner*, May, 1888, Dr. Walter Lindley concludes a paper with the following statements:

Finally, I would lay down the law that ergot should be used in midwifery only as a hemostatic, and its use as a hemostatic should be limited to the following conditions: 1. In cases of threatened abortion it can be given in small doses to prevent abortion; 2. In cases of inevitable abortion it may occasionally be used to delay the abortion; 3. In cases of post-partum hemorrhage it may be used at the time of the hemorrhage and for two or three days thereafter; 4. It may be used hypodermically, after the removal of the placenta, in Cæsarian section.

That there are other remedies which might well supplant ergot, even in these conditions, I have no doubt. Chief among these are gossypium, hamamelis and hydrastis. Yet I never believe in discarding an old and long-used drug for a new one, unless I see that the new one presents points of decided superiority. That either of these medicines mentioned have any advantage over ergot has not been proven to my satisfaction.

In conclusion, I would advise the young practitioner who says that he can practice midwifery without ergot not to attempt to carry out his intention in that direction, but to rather walk in the footsteps of those who have had an abundance of experience, and who can better judge than he as to what medicines should be omitted from the obstetric-bag.

Vaginismus During Pregnancy.

Dr. John Morris, of Baltimore, in a paper read before the Gynecological and Obstetrical Society of Baltimore, March 1, 1888, says: Vaginismus is not only an extreme irritability of the vaginal outlet, but of the vagina itself. In the married relation this is accompanied by spasmodic contraction of the sphincter of the vagina frequently in so marked a degree as to prevent marital

intercourse. This trouble, which is certainly one of the neuroses, occurs generally in patients of a hysterical temperament. The superficial branch of the pudic nerve is supposed to be the seat of the neurosis. In many cases the hyperæsthesia is so great that local treatment can be employed only under the use of anæsthetics. In two cases under my care I was compelled to resort to chloroform before I could attempt an examination. One of these patients, the wife of a well-known actor, had borne a child, and the other was a woman forty-five years old who had been married seven or eight years, but had never been pregnant. In this case the dyspareunia was so intense as to prevent cohabitation. My friend, Dr. Wilson, extirpated the remains of the hymen and this was followed up by daily dilatation of the vagina with plugs, under chloroform. These measures failed to afford much relief. In the case first mentioned I used applications of nitrate of silver twice a week, also under chloroform, but no relief was obtained. That dilatation of the vagina and stretching the pudic nerve may in some cases effect a cure is possible. Topical applications, cocaine excepted, as I shall mention hereafter, are entirely useless. General sedatives which are often resorted to, exercise very little influence on the disease. I need not refer to Sims's or Emmet's operations to cure vaginismus, as they are generally known to the profession. Vaginismus, however severe, is not necessarily a barrier to impregnation, as a case which came under my care during the past year will conclusively show.

On August 16, 1887, I was called to see Mrs. K., twenty-two years old. She informed me that she had been married about five months, but that her husband had been unable to cohabit with her on account of the extreme pain incurred by attempts at intercourse. Her mother, who was present, stated that the husband had on one occasion succeeded in introducing the male organ about half an inch, but was compelled to desist on account of the pain her daughter suffered. About two months after marriage the services of a lady doctor, a sister of the husband, had been invoked, who administered an anæsthetic and made applications of cocaine to the vagina on several occasions, but without any amelioration of the trouble. She finally announced to the patient that she (the patient) was pregnant, and that it would be impossible for her to bring forth her child, owing to narrowness of the pelvis. This alarmed the patient greatly, and I was then called to see her. Without resorting to chloroform, I made a liberal application of cocaine to the vulva and external orifice of the vagina and was thus enabled to make an examination. I found the patient about five months advanced in pregnancy, though she assured me that her husband had never succeeded in passing the vaginal outlet. The pelvis was a fairly roomy one; the antero-posterior diameter was about three and a half inches. The lateral diameter, however, appeared to be somewhat contracted. After examination I assured the family that there would be no difficulty experienced by the patient in giving birth to a child, save perhaps that forceps might be necessary when the head had reached the lower outlet of the pelvis, a prediction which was afterwards verified. She was brought to bed November 1, 1887. Labor progressed very favorably. The presentation was normal; the os dilated kindly and naturally and the head descended into the lower strait of the pelvis in the course of six hours. Here, however, it was arrested, although the pains were regular and

forcible. Hoping that she might be delivered by natural means I waited three hours, when, as the head made no perceptible progress, I applied the small Beattie forceps and delivered her in a few minutes without difficulty. The patient made an excellent recovery, but the child suffered from the effects of two scalp tumors for several months, showing the great pressure that was brought to bear upon the head whilst in the lower strait of the pelvis. One of these tumors still remains.

One satisfactory result of the pregnancy has been the alleviation of the vaginismus. I saw the patient a few days ago, and she assured me that marital intercourse causes no suffering or inconvenience. Dr. Moore Madden, of Dublin, reports a case very similar to this. He was, however, compelled to incise the intact hymen at the time of the delivery.

Vaginismus still remains and, no doubt, long will remain one of the *opprobia medicorum.* The only rational and radical means that can be employed for its cure is the extirpation of the superficial branch of the pudic nerve, which is the seat of the trouble. A strong solution of cocaine could be used by the husband, if properly instructed, to effect coition; but this is a troublesome and not a very agreeable procedure for a newly married man. It seems to me that the use of a small quantity of chloroform or still better, the bromide of ethyl might be safely employed by the husband at such times as marital intercourse may be desired. A little simple advice from a medical man in regard to the administration of these agents is all that would be necessary.

Dr. T. A. Ashby said that in connection with the subject of vaginismus, to which Dr. Morris had called attention, he would refer to the recent work of Apostoli in this field. Apostoli has recently described a condition of localized sensibility about the entrance to the lower part of the vagina, which he designates as an imperfect vaginismus. In these cases there is usually a simple neuralgic spot not larger than the tip of the index finger, located at different points on the vulva or labia, which give intense pain on touch and totally prevent coition. In this condition Apostoli has found that the application of the Faradic current of high tension is a most effective remedy. The current should be used well and methodically, and the electrical action must be brought in direct contact with the sensitive spot. To do this the two poles are placed side by side, but separated by an insulating layer of gutta-percha. Apostoli has devised an electrode for this purpose. When the vaginal neuralgia is deep-seated and extends over a large segment of the vestibule, this instrument will not answer; he then uses a large bipolar sound, with which a double vaginal Faradization can be made. As this work of Apostoli is new it seems right that a careful trial should be given to it before subjecting these cases of vaginismus to operative interference.

Primary Cancer of the Fallopian Tube.

At a meeting of the Pathological Society of London, May 1, 1888, Mr. Alban Doran exhibited a right Fallopian tube and ovary. The tube was dropsical, and its walls were invaded by a cancerous growth. The ovary was small, but completely converted into new growth. The patient was a married woman, 48 years old. For three years she had been subject to a clear vaginal discharge, which sometimes contained membranous fragments. In January, 1887, Dr. Am-

and Routh scraped out the interior of the uterus, removing a quantity of red fungous growths. An attack of pelvic inflammation followed, and during the patient's recovery a tumor was detected, rising to the right above the pubes. The tumor grew slowly larger, and the patient lost flesh; fragments of solid matter came away in the discharge. On March 1, 1888, Mr. Knowsley Thornton removed the tube and ovary; the patient recovered. The uterus was free from malignant disease. A series of secretions of the new growth were also exhibited. The tumor-substance was made up of collections of large polymorphous cells, surrounded by trabeculæ which were infiltrated with small cells. A few tubules lined with ciliated epithelium were to be seen; they were surrounded by a wide area of large flat cells. The tubules and their surroundings suggested the glands which, as Hennig and Bland Sutton had demonstrated, existed in the Fallopian tube, and further indicated that the cancer originated in those glands. The same collections of large cells (with wide oval spaces caused by vacuolation) and trabeculæ, showing small cell infiltration, were to be seen in sections from the ovary. The history of the case, and the small size of the infected ovary compared with the large proportions of the growths in the tube, would appear to prove that the tube was the primary seat of cancer. A cancerous ovary grows very rapidly, and seldom infects the tube till it had become a large tumor. Only three cases of primary malignant disease of the tube have been described. The first, Scanzoni's, is doubtful; in the second, Dr. Senger's, of Breslau, the tumor was sarcomatous; the third occurred in Dr. Martin's practice, and is described by Dr. Orthmann as an instance of truly cancerous papilloma. In the specimen exhibited by Mr. Doran, malignant degeneration of previously innocent papillomatous growths might have taken place; but in any case he believes that the cancer is histologically of glandular origin.—*British Medical Journal*, May 5, 1888.

A Year's Work in Laparotomy.

At the meeting of the Obstetrical Society of Philadelphia, April 5, 1888, Dr. William Goodell read a report of his cases of laparotomy during the year 1887. He had had fifty-three of them, as follows: Ovariotomy, 27 cases; 22 recoveries, 5 deaths. Oöphorectomy, 19 cases; 18 recoveries, 1 death. Hysterectomy, 1 case; 1 recovery. Malignant tumor of omentum, 1 case; 1 death. Pelvic abscess, 2 cases; 2 recoveries. Exploratory Incision, 3 cases; 3 recoveries. Total, 53 cases; 46 recoveries, 7 deaths.

With regard to the fatal cases: the first one was a case of malignant papillary cyst of both ovaries, by which every abdominal organ seemed to be infected. Bleeding intestinal adhesions needed several ligatures and the application of Monsel's solution. Insurmountable obstruction of the bowel took place and the woman died on the seventh day.

The second fatal case was in a short but exceedingly fat woman, weighing 254 pounds, who could not walk without assistance. The area of raw surface made by the deep and long abdominal wound was the most extensive Dr. Goodell had ever seen. Both ovaries being diseased were removed; they had contracted adhesions to the abdominal wall. The larger alone weighed about twenty pounds. The woman was operated on at her own home in the country and was not again seen by Dr. Goodell. She died on the fourth day from peritonitis.

The third case was a forlorn hope. At the time of the operation she had septicæmia; she was delirious and very ill indeed and suffered great pain. By her shrieks she disturbed one whole floor of the University Hospital, although she was on that account confined in a remote room. The cyst was intraligamentary and was adherent to the abdominal wall, the intestines, the stomach, the aorta, the womb and to the whole pelvic basin. All the adhesions but the pelvic ones were severed; but the latter were not touched, as the woman seemed to be dying, and it was apparent that she could not survive the shock of a completed operation. Many stimulating hypodermic injections were given during and after the operation, but she never rallied, and died seven hours later. The fourth was a bed-ridden and very emaciated woman in whom the cyst had burst several weeks before, and she was being slowly poisoned by the absorption of the colloid matter. The cyst had universal adhesions and every abdominal organ seemed infected. The peritoneal cavity was flushed and drained. The patient died on the eighth day from sheer exhaustion. The fifth death took place in a case of putrid and rotten dermoid cyst. The woman was also bed-ridden from septicæmia. During the operation, while very firm adhesions were being severed, the cyst wall was torn and a very small quantity of the offensive fluid escaped into the abdominal cavity. This was flushed and drained, but the woman died on the fifth day from septicæmia.

Of the nineteen oöphorectomies there were an unusual number of difficult cases, both on account of adhesions and of the size of the fibroid tumors, for which the ovaries were removed. In the sole fatal case, death was due to uræmia, from suppression of the urine, unsuspected kidney mischief probably having previously existed.

Of the seven remaining laparotomies, one resulted in death on the forty-eighth day. It was a case of malignant solid tumor of the omentum, causing ascites and excessive pain, from which the patient had been confined to her bed for many weeks. The great vascularity of the parts, and the very extensive adhesions to the bowels, made the operation a difficult one. For two weeks the patient did well, then large abscesses burst out of the wound and into the intestines, and the drain destroyed her life on the forty-eighth day after the operation.

In the two cases of pelvic abscess, the sac was sewed to the lips of the abdominal wound and a drainage tube put in. In the case of hysterectomy, a two-pound sub-peritoneal fibroid of the womb was removed, on account of pain and vesical irritation caused by it. The three exploratory incisions were made respectively for sarcoma of the womb and ovaries; for malignant disease of the intestines; and for a fibroid of the womb. In the last one it was the intention to remove the ovaries, but on account of very firm and deeply seated adhesions those organs could not be reached. In the other two cases of the exploratory incisions, malignancy was suspected, but the operation was performed to make out a positive diagnosis.

Among the twenty-seven ovariotomies there was a larger number of difficult cases than usual; nor had Dr. Goodell refused to operate in any case offered him. In sixteen both ovaries were removed. Twenty-three had adhesions and drainage was resorted to twelve times. In three the adhesions were universal; in six

firm intestinal adhesions existed ; while in three the cysts were intra-ligamentary, presenting very formidable obstacles to their removal. In one of these last cases, the result was successful, although the wound had to be reopened four hours later to stop a deeply-seated hemorrhage, and although a fecal fistula was established by injury to the rectum.

Dr. Kelly remarked that he had been especially pleased with the careful consideration given by Dr. Goodell to certain points in the handling of abdominal cases, which were too often looked upon as minor matters in the treatment, but are after all the *essentials* of success. One of the most important of all matters is the checking of the hemorrhage from adhesions to intestines, etc. A satisfactory way of checking hemorrhage from smaller areas on the abdominal wall is by passing a needle under the peritoneum and carrying several threads across the bleeding area, and upon tying these threads, bringing raw surface to raw surface. He had seen Dr. Zweifel, of Leipsic, invert a *large* bleeding area on the abdominal wall, and transfixing skin, muscles and peritoneum from without, fasten a number of sutures to ivory rods on either side of the skin-flap thus formed. He had frequently used the cautery in times past, but not recently. In a recent case of severe general hemorrhage from the base of the whole broad ligament, after removing a distended Fallopian tube, he had checked the bleeding by a series of ligatures enclosing the whole broad ligament, from its pelvic attachment to the uterus, introduced entirely beneath the raw surface.

A practical point of the utmost importance, upon which he would insist, is that when the bleeding is checked all danger is not obviated, wherever there has been much stripping of peritoneal adhesions in spite of the fact that the bleeding may have been completely checked. A lymph flow, sometimes profuse, is often poured into the abdomen, and if it is not carried off at once by the peritoneum, it forms an excellent culture field for the few bacteria which are almost sure to enter at any operation. The drainage tube meets this danger.

He has had a good many cases of rectal fistulæ, which have been very troublesome, but the tendency here seems to be to heal. The peculiar liability of pus cases to this accident is readily accounted for by the tendency of the abscess to form rectal adhesions, and ulcerating through, to evacuate itself. In many cases the wall between the abscess and rectum must be very thin. The best after-treatment in abdominal cases is to put them in the hands of a trained nurse, and leave much to her judgment.

Tumor of the Right Ovary in a Child Seven Years old, associated with Precocious Puberty.

At the meeting of the Clinical Society of London, April 27, 1888, Mr. R. Clement Lucas read a paper on this case. The patient was admitted into the Evelina Hospital, in December, 1884, for a tumor of the abdomen, and the mother had noticed some time before that the child at times had a dark-stained vaginal discharge. Other signs of puberty were also present, namely, firm breasts as large as oranges, and a mons veneris covered with hair an inch in length. The tumor was firm and slightly lobulated. This extended from the right iliac region to within two fingers' breadth of the left anterior superior spine, and from the pubes upwards to one inch above the umbilicus. The child menstruated while

under observation on January 7, and again on January 25, 1885. Mr. Lucas performed ovariotomy on February 4, 1885. The tumor was a solid, round-celled sarcoma. The child menstruated again on February 6, two days after the operation, but from this time it ceased. The signs of puberty also gradually receded, and the breasts again became flat. The child made an excellent recovery, and when seen two years and nine months after the operation was in perfect health, and showed no signs of recurrence. Mr. Howard Marsh said it was not always the case that growing ovarian tumors in children hastened the advent of puberty. Some years ago he performed ovariotomy on a child 8 years old, in whom no precocity existed. He thought that point might be settled by looking up the records of such cases, which were not rare. The nature of the tumor in Mr. Lucas's case was sarcoma, not dermoid, as were most of the cases of ovarian disease in young children. Mr. Meredith mentioned a case to prove that these tumors were not always accompanied by sexual precocity. The patient was a little girl 7 years old, from whom he had assisted to remove a dermoid growth of the ovary. She had no sign of precocity. On the other hand, the stimulating effects of ovarian growths on the sexual functions were well marked when they occured in women after the menopause; in such patients there was often a return of the menstrual discharge.—*British Medical Journal*, May 5, 1888.

Case of Extra-uterine Pregnancy.

At the meeting of the Philadelphia Obstetrical Society, May 3, 1888, Dr. John B. Deaver reported a case of Extra-uterine Pregnancy, and said: On the evening of Feb. 26, 1888, I was called to see Mrs. S. I found her in bed complaining of bearing down pains in the lower part of the abdomen, which were very severe, with a pulse of 80, the temperature 99° and the skin moist. I had attended her three years previously in child birth and had delivered her with forceps. Three years prior to this I had operated on her for bi-lateral laceration of the cervix from which she had made a rapid recovery. From the character of the pain of which she complained at my present visit I thought she was threatened with a miscarriage. She was gone two weeks over her time for menstruation and the pain had come on suddenly that afternoon. She admitted that she had been using abortifacients, but said there had been no vaginal discharge following the pains. Vaginal examination was negative. I prescribed for her supporitories of opium, gr. j, each to be used every three, four or five hours, depending upon the amount of relief experienced. I saw her the next day at 10.30 A. M., and found her suffering quite as much pain as the day before, when I administered a half a grain of morphine hypodermically and increased the suppositories to two grains each, one to be given every four or six hours as required. The pulse was now 96, and the temperature 99°. On making an examination of the abdomen, I found it slightly prominent. Tongue moist, and general condition not at all indicative of any serious trouble. As yet there had been no vaginal discharge; vaginal examination again revealed nothing new. From now I did not see the patient until Tuesday evening, when I was summoned to come forthwith. Upon my arrival I found the patient much depressed, abdomen more distended, pulse 96, temperature 99°; tongue moist, some nausea. The pain was now referred more particularly to the umbilicus and described as being more continuous than at the

last visit. I now determined to make a more thorough examination. Deep vaginal pressure revealed a mass apparently the size of an English walnut, situated to the left and posteriorly. This to my mind was one of two things, either an extra-uterine cyst or a knuckle of intestine which was the seat of obstruction. At this visit the patient was sick at the stomach and considerably depressed. Again I made a thorough examination of the abdomen which revealed nothing more than the general distention. Up to this time the patient had had no action of the bowels; this associated with her general condition and the symptoms referable to the abdomen, and believing her trouble to be either a rupture of an extra-uterine cyst or an acute intestinal obstruction, I determined to ask for a consultation with the view of performing abdominal section. I asked Dr. Joseph Price to see her with me and we both agreed that the operation was urgently demanded. The next morning the abdomen was considerably distended and sensitive to the touch and still no physical signs of a tumor. The vomit was becoming stercoraceous and the patient was showing more evidence of depression, yet her temperature was 99° and her pulse 96, considerable in volume, but having a wiry feel, indicating peritonitis.

At 12 M., assisted by Drs. J. Price, J. Wm. White, M. Price and H. C. Deaver, the patient was placed on the table and the abdomen was opened in the median line between the umbilicus and os pubes. As soon as the peritoneum was reached it was very evident that the patient was the subject of internal hemorrhage. Opening the peritoneum as rapidly as possible, I introduced my index finger into the lower part of the abdominal cavity, breaking my way through a mass of clotted blood, and brought the right tube and ovary into the incision. Finding these to be normal, I turned my attention to the left side, when I found at the junction of the tube and uterus a ruptured extra-uterine cyst with the placenta *in situ*. In attempting to ligate this off, the placenta was dislodged, occasioning for a few moments a frightful hemorrhage. I quickly transfixed the broad ligament below the cyst and, in ligating, found it necessary to include the superior corner of the uterus before the bleeding could be controlled. The pregnancy was tubo-interstitial. Having secured my ligatures, the cyst was cut away. The fœtus could not be found. An ordinary sized vein full of clotted blood was removed from the peritoneal cavity. After the removal of this the sigmoid flexure distended to the size of an ordinary wrist presented itself at the bottom of the wound; it was considered judicious to examine this portion of the intestinal tract, owing to its great distension, when it was found that at the junction of the terminal portion of the descending colon with the sigmoid flexure, there was a marked kink of the bowel due to an inflammatory band. This was relieved, which resulted in the intestine contracting and expelling a large amount of flatus *per anum*. I now learned that the patient had been given by her husband, two or three days previously, an enema of soap-suds, and that the night before, when the husband was administering the enema again, he lost the rectal nozzle and had not since been able to find it. Having completed the operation with the exception of making the final toilet of the peritoneum it occurred to me it might be well to examine the lower part of the sigmoid flexure as well as the upper part of the rectum, when I discovered a foreign body, evidently the rectal tube, in the sigmoid flexure. This was pushed along the bowel into the rectum, from which

it was removed after some little difficulty, with a pair of sponge forceps. The abdominal cavity was irrigated with hot, distilled water, and a glass drainage tube was introduced into the left pelvis. The wound was closed with six interrupted silk sutures. The wound was dressed with a dry aseptic dressing. The patient showed very little depression from the operation, and progressed very well for three days, when the drainage tube was removed. For two more days she did well, then the abdomen became very much distended, and the vomiting recurring, the temperature went up to 101°. I naturally thought that in all probability a small collection of purulent matter in the pelvis might be the cause of these symptoms, and therefore I opened up the lower part of the wound and explored the pelvis, but could find nothing more than what proved to be healthy deposit. To be on the safe side I introduced a small drainage tube, but with little or no effect. The patient died at the end of twenty-four hours. Unfortunately I was unable to secure an autopsy, but I think the immediate cause of death was most probably obstruction of the bowels.

The case is interesting in the first place from the character of the pregnancy, tubo-intestitial; secondly, the early rupture—but six weeks pregnant; thirdly, no evidence of collapse, which we would naturally look for in a case of internal hemorrhage; fourthly, the cause of the rupture, which I think was provoked by the abortifacients; and, again, that the case presented symptoms or signs of acute intestinal obstruction.

Dr. Baldy thought that the diagnosis in cases of extra-uterine pregnancy is a matter of extreme difficulty, and as a rule that it is impossible to make a positive diagnosis. Some time ago he had seen a case at the Philadelphia Dispensary, which had just been examined by Dr. Price. He was asked to examine the case and make a diagnosis. The symptoms presented throughout every point to which attention has been called as bearing upon the diagnosis of extra-uterine pregnancy. The menses had stopped for one or two periods and the woman presented all the signs we should expect to find at about the second month of pregnancy, including morning sickness and milk in the breasts. There was bladder and rectal irritation. Examination by the vagina disclosed a small mass to the left of the uterus. She was having characteristic colicky pains and had been passing from the vagina decidual debris, or at least what we regarded as such from her description. We both made a diagnosis in accordance with these facts, and several other gentlemen present concurred in this opinion. At the operation the case was found to be one of small ovarian cyst. He thought that we heard a great deal of cases in which the diagnosis had been made and verified, but not enough of such cases as this one, which go to show how easily one can be mistaken.

If the diagnosis is made, the question of treatment arises and one of the burning questions of the day is whether extra-uterine pregnancy should be treated with electricity or by abdominal section, where the diagnosis is supposed to have been made before rupture has taken place. The majority of American surgeons, he was sorry to say, at present favored the treatment by electricity. Of course after rupture had taken place there was but one treatment, that of abdominal section. The treatment by electricity presents some advantages. It will undoubtedly kill the fœtus, and it does way with the objection of the so-called

mutilation of the woman, as it also does away with the worry and excitement of an operation. There are, however, disadvantages which cannot be overlooked. There are cases on record in which the fœtus has ulcerated its way out. Dr. Mann states that there are only two such cases on record, and that as the number is so few we need attach no great importance to them; but if these two cases are compared with the total number of cases of extra-uterine pregnancy treated in this way and reported within the last few years, the proportion is decidedly large. There have been four cases reported of rupture of a vessel, without rupture of the cyst. In one case, that of Dr. Janvrin's, the vessel ruptured some days after the fœtus had been killed by electricity, and the patient lost her life. Here again is a very positive danger, and one which we cannot ignore, as Dr. Mann seems to think. As far as I know there has never been a death which could be attributed to the knife. A number have died after the operation, but they have died in consequence of the rupture and not from the operation.

The fact that the fœtus has been killed does not make the tube pervious, but leaves the woman as sterile from that side as effectually as if it had been removed by the knife and ligature. Dr. Lusk has reported two cases, in one of which, after six years, there was a mass still remaining as large as a pigeon's egg, and in the other, after four years, the tumor is as large as a hazel-nut. This is the usual history of these cases. I am in favor of removing any pathological growth whatever, from any portion of the body at any time if it can be done without risk to life. These masses which are allowed to remain are as likely to set up subsequent trouble as some of the tubal and ovarian troubles for which we operate every day. It seems to me that the gentlemen who accept the knife for the least dangerous, and refuse it for the more dangerous trouble, are extremely inconsistent, to say the least. By operation, the cyst is removed, the fear of subsequent danger is done away with and the risk of the continued growth of the placenta, however small that risk may be, is also avoided. By trifling with electricity we put ourselves very much in the position of the child playing with fire, and our fingers are in just as much danger of being burned.

Dr. H. A. Kelly said that it made a great difference whether we saw the case in its incipiency, say at the end of the sixth to the eighth week, when we must be more or less puzzled, or in the third or fourth month, when there is a large tumor, or again in an advanced stage, where the dangers and difficulties are of a different character. Each of these classes demands separate consideration and separate treatment. Dr. Baldy had referred to a case in which he said that all the signs of extra uterine pregnancy were present. He would criticise the statement in two particulars. In the first place the decidua should be seen by the physician. This is a characteristic symptom. If we depend upon the statement of patients we are apt to be deceived. In the second place, there is another characteristic sign, and that is the diminution of the size of the tumor while under observation, due to the absorption of amniotic fluid. This was observed in his own case.

Very serious trouble has followed Faradic fœticide in a large number of cases. Both of Dr. Allen's historical cases had serious inflammatory trouble for a long time after being invalided. In the discussion following my paper on the removal of an unruptured extra-uterine pregnant cyst, Dr. Harris brought to light

the subsequent history of many cases in which grave trouble had followed Faradic fœticide.

DR. O'HARA thought that the occurrence of symptoms indicating the presence of internal hemorrhage would throw light upon the diagnosis. He had a case in which the patient had internal hemorrhage, and the only thing to explain it was that the woman had passed her time for menstruation.

DR. GOODELL asked how Dr. Deaver explained the presence of the nozzle of the syringe so high up in the bowel?

DR. DEAVER said that in his case there had been no indications of internal hemorrhage. The only thing which had attracted the patient's attention was the occurrence of pain, which had appeared four hours before his first visit. The only way in which he could account for the nozzle of the syringe being so high is that, after it became detached, it was forced upwards by the force of the stream of water. There could have been no suction on account of the obstruction of the bowels.

Ovarian Tumors in Pregnant Women.

At the meeting of the Harveian Society of London, April 19, 1888, DR. BRAXTON HICKS read the notes of two cases of ovarian tumor, associated with pregnancy, in which the removal of the tumor had been followed by recovery. In the first, labor had continued thirty hours. The tumor came down, and prevented the head being seized with forceps; turning was tried, and found impossible. The child was finally delivered with long forceps, and was still living. The placenta required removal. The tumor grew rapidly after delivery, and was removed. It was adherent everywhere, and was compound in character, nearly colloid. The patient made an excellent recovery. In the second case there was an ovarian tumor which reached rather above the umbilicus. It was diagnosticated to be composed of two cysts. The woman had missed two periods, and it was proposed to wait until after the middle of pregnancy. However, the cyst became tense and painful, and was removed. The pedicle was found twisted, and the tumor adherent and becoming necrosed. No uterine action came on for two weeks, when an ovum was expelled. The cases showed that when ovarian tumor and pregnancy were concurrent, if the tumor gave signs of irritation, the sooner it was removed the better. Dr. Handfield Jones spoke of the rapid growth of ovarian cysts after the uterine had been emptied. He had known them within two months to attain enormous size, and contract adhesions. He thought, therefore, that ovarian tumors ought to be removed as soon as possible after delivery.—*British Medical Journal*, April 28, 1888.

Extra-uterine Pregnancy: Laparotomy; Delivery of Dead Fœtus.

In the *St. Louis Medical and Surgical Journal*, May, 1888, DR. WALDO BRIGGS reports a case of extra-uterine pregnancy of 15 months duration, in which he performed laparotomy and delivered a dead fœtus. The patient was a German woman, white, 25 years old, unmarried, and became pregnant fifteen months before (menstruation ceased in January, 1887). Nothing peculiar marked the earlier stages of gestation, which latter progressed in an apparently natural manner until

the end of the ninth month was reached. Being unmarried and the family somewhat well to-do, when the ninth month passed without delivery, the patient and the family began to believe that the pregnancy was not real, although all the external signs were present. Toward the end of the ninth month, however, there were severe abdominal pains, which continued until the middle of the tenth month, and then first, when the sufferings became so intense that they could no longer be borne, Dr. Charles Remme was called in. The latter after a careful examination, diagnosticated extra-uterine pregnancy and urged an immediate operation. At this time (toward the end of the tenth month) the beating of the fœtal heart could be plainly heard. From motives which are not known, the patient and family refused even to consider an operation, and Dr. Remme's skill was taxed to its utmost to relieve the constant tormina and excruciating abdominal pains. After a few visits, his services were dispensed with, and the woman was sent to the Female Hospital, where she remained but a short time and was brought back home, and Dr. Remme again called in. The patient, by this time, was reduced almost to a skeleton. The fœtal heart could still be heard, however, and Dr. Remme again begged for an operation, but without avail. About February 23, the fœtal heart ceased to beat, and with the death of the fœtus there was, as usual in such cases, a temporary amelioration in the agony which the patient had endured for three months previously. She gained in strength, and finally was able to get out of bed and walk around the room—all of which made her and her family the more obstinately refuse surgical interference.

The amelioration was very short-lived however; in a few days pain returned, and the symptoms became so urgent that the consent to call a surgeon, so long withheld, was given, and Dr. Briggs was called.

The latter saw the patient for the first time March 30, or about fourteen months after the first signs of pregnancy appeared, and five weeks after the last click of the fœtal heart was heard. She was emaciated to the last degree, only the abdomen was enormously distended. She was rational, thoroughly appreciated her situation, and not only entirely willing, but eager to have something done for her. There were no signs of septicæmia. Examination disclosed the uterus to be empty and normal in size and otherwise. By palpation the fœtus could be felt lying in the abdominal cavity, the head apparently in the right lumbar region.

The patient had already been made aware of the remoteness of any probability of recovery, under the circumstances; but was eager for operation, fully understanding that the alternative was death from septicæmia or exhaustion. Dr. Briggs therefore operated April 1. An initial incision was made in the linea alba, extending from the navel to the pubes. On getting into the cavity, the back of the child was disclosed and by manipulation the head was found in the epigastric region. The fœtus was of immense size, and before attempting to remove it Dr. Briggs was compelled to extend the incision upwards almost or quite to the ensiform cartilage.

The child lay face downward among the intestines, and (except a little strip of membranous material lying across its buttocks) absolutely uncovered and loose in the abdominal cavity. The right tube was ruptured and showed that it had withstood considerable distension prior to giving away. The fœtus was far

advanced in decomposition, and on lifting it from its position I found portions of the intestines of a dark purple hue, the ascending colon being almost black from pressure and consequent mortification. Of the sac the only trace which remained in the cavity was the membranous strip which covered the buttock as before stated. The peritoneum was dark and congested in patches.

The dead fœtus being removed, the placenta was found to be attached to the uterus, the right broad ligament, the omentum, the intestines and the peritoneum. In the examination of the attachment there was a very slight involuntary traction upon the placenta; being partially decomposed it ruptured, and a most appalling hemorrhage ensued; and although compression of the abdominal aorta was made almost instantly, so tremendous and sudden was the gush that not less than six quarts of blood were lost. The remainder of the placenta was then removed. Finding considerable hemorrhage to continue from the omentum at the points of placental attachment, he ligated it and removed about twelve inches of it. The cavity was then thoroughly cleansed and the wound closed under antiseptic precautions. The patient was, he says, as may easily be supposed, very nearly spent, but rallied under hypodermic injections of brandy. After she was put to bed hiccough set in and was momentarily controlled by ether and milk. It recurred, however, again and again, and the patient succumbed ten hours after the operation. The fœtus weighed fifteen pounds.

The Electrical Treatment of Diseases of the Uterus.

At the meeting of the Brighton and Sussex Medico-Chirurgical Society, May 3, 1888 (*British Med. Journal*, May 12, 1888), a paper on the electrical treatment of diseases of the uterus was read by Sir T. Spencer Wells. After referring to his early studies in electro-therapeutics, he spoke of the work of Apostoli and of his visit to the latter in the autumn of 1886. He says that the labors of Apostoli have expanded and given a definiteness to our knowledge of the special power of galvanic currents in the treatment of uterine diseases, and of the mode of applying the currents in a way which he sums up as follows: In the first place we have learnt from him better to understand the double action of the uninterrupted, continuous, galvanic current. The one action is purely local, and coincident with the flow; the tissues immediately in contact with the pole which delivers it are decomposed; the bases and acids of the substances and fluids acted upon are set free, and, according to their nature, produce cauterization of the surrounding parts, independent of any thermic influence. This effect is local, immediate, and visible. The second action is due to the interpolar passage of the current. It is a trophic action influencing the nerves, vessels, and lymphatics, followed by molecular changes, so as to modify the nutrition of the tissues through which the current goes, and varying according to the pole employed. The effect of the direct and of the secondary counter-current is durable, and, whatever may be our interpretation of it, it is remedially of far more importance than the mere galvano-chemical cauterization.

Secondly, though the coagulating power of the current passing from the positive pole was known from the writings of Ciniselli and A. Tripier, we have had disclosed much more since as to the distinctive character of the action of the currents from the two opposite poles. It was with the positive current that Apostoli

began his attack upon uterine fibroids, because of the more striking nature of the hemorrhagic symptoms, and it was the speedy relief of this grave trouble by the production of a hard, dry eschar, and resisting cicatrix, which encouraged him to persevere. The eschar resulting from the alkaline caustic action at the negative pole is just the contrary, softening and liquefying, and tending to promote discharge and hemorrhage. Logically enough, its dissolvent powers were applied to the opposite class of cases, where there was no hemorrhage, and the object was rather to reduce the bulk and solidity of compact masses of fibroid material. Experience has proved this to be as good in practice as in principle. The positive pole is therefore designated as "anti-hemorrhagic" or "hemostatic," while the words "hemorrhagic" or "denutritive" are applied to the negative pole.

Thirdly, Apostoli has taught us a much more satisfactory way of utilizing these currents in uterine diseases. His predecessors had used currents which were generally uncalculated and ineffective. They were often not strong enough to do much good, yet at other times sufficient to bring about mischevious results. They were brought into play in an ill-judged fashion, and, when used by means of puncture, the punctures were made through parts which ought to have been left untouched. Now the operation is performed under such control as to be a matter of measurable certainty. A strong and regular current is at command. By means of the galvanometer a knowledge of the exact intensity of the current employed is insured. The dosage can be regulated in proportion to the cauterizing and trophic effects considered necessary. A current of high intensity can be made to traverse the tissues inoffensively, and brought out through the abdominal integuments in a dispersed fashion, without more than a temporary blush, and made to complete the circuit through the cutaneous electrode imbedded in wet clay. Than this clay nothing as yet has been found more effectual. Then, by insisting upon the intra-uterine introduction of the current by means of the uterine sound, or its direct interstitial application through the inattackable trocar, a certainty of action is obtained which was otherwise out of reach. The whole performance is thus strictly at the will and under the control of the operator, who, granted his mastership, wants no other guide either as to the dosage, direction, or duration of the current than the facial expression of the patient, or her declaration of tolerance.

Fourthly, other important points on which we have clear and definite information are the modifications which this treatment requires according to the varying nature of the cases, and the successively changing circumstances of each case as the treatment is going on, and the wide range of uterine affections to which it is adaptable. Given a tumor and a current, there is no such thing as reciprocal automatic action. At every step of the process of cure, deliberation, judgment, and promptitude of resource are challenged. One day there is an unaccountable power of endurance, another an exaggerated sensibility, one day a perplexing structural resistance, another an easy flow of current, all which have to be taken cognizance of, and throw an ever-recurring strain upon the mindfulness of the surgeon, enough to baffle book-guided novices, and make inestimably valuable the more than five years' experience to which we can recur for counsel. A field, too, is opened up for exploration among the infinitely multiform presentations of disease of the female generative organs, untraversable by the limited powers of any

one man, but to which Apostoli has pointed the way. This will be the work of the coming generation.

Lastly, there are several interesting questions upon which the work of Apostoli has thrown a new ray of light, such as the dangers and difficulties of the procedures; their being a cause, or the reverse, of subsequent sterility; the practicability of applying the treatment in cases where the uterus is impenetrable; the permanence of the benefits derived from the treatment in the mitigation of the symptoms and the reduction of the tumors; the relation of the menopause to the production or dispersion of fibroid enlargements. It would take up too much of your time if I were to consider these in detail, and it is needless, as Apostoli himself is here, on the invitation of your President, to give any required information. But, admit that there may be danger in treating our patients with electricity. Is this a reason for rejecting it? What surgical operation is free from risk? Would common sense sanction our leaving disease alone till science has reached completion and skill infallibility? The danger lies not in the method but with the operator, and the moral is, that no man should undertake this work till he has qualified himself to do it well.

Then, as to the permanence of cure, where cure there has been, one can only say that though five years and a half is but a short term to form estimates upon, when we are assured that during that time the return of symptoms, or the necessity for further measures has been quite exceptional, it augurs well for the future, and the objection of the possibility of relapse becomes of little weight. Again, when Apostoli tells us that some of his patients now under treatment are women in whom the tumor developed after the menopause, no trace of such a growth having previously existed, what are we to say to the principle of Hegar's operation? To say the least, it would limit castration in the treatment of uterine disease to the cases in which loss of blood is the prominent symptom in younger women. I might go on much further, but I think I have said enough to show that whatever may be, or may not be, the merits of Apostoli's method, we have made since he began his work a distinct scientific advance. And coupling the specific information we have thus acquired with our previous diagnostic tact and pathological exactitude, it appears to me that we are in a better position, even supposing that circumstances hinder the personal practice of the method, not only to discuss the abstract principles upon which it is based, but as consultants to pronounce upon its respective applicability to the cases submitted for our opinion.

There are conditions of fibroid tumors in which it would seem to me almost idle to suggest electricity. A polypoid growth from the mucous surface of the uterus projecting into the cavity, or perhaps through the os, can be so easily and expeditiously taken away that I should not think of any slow or gradual process. Neither does it appear very probable that a subperitoneal out-growth from the body or fundus of the uterus could be in any great degree affected by any current that could be made to reach it. Myomotomy would be the work of minutes, and the risk scarcely worth mentioning. Even large solid tumors, the removal of which means the removal of a great part of the uterus, have been successfully removed by me and by others, and success has increased with experience. But the risk must

be always great, and there are tumors so large, or with such intimate connections, that no prudent surgeon would meddle with them. Here, surely, is the occasion for the electrician to show his power. His method is a new resource for a desperate condition, and should be welcomed as such. It has been successful in such cases, if not completely so yet to a degree which has rendered life enjoyable. No weak prejudice should stand in the way of recommending a trial under experienced guidance. Where the object is mainly to suppress hemorrhage, electrical treatment has decided advantages over other practices. Should the tumor be growing, but not advanced beyond the limits of reasonable surgical interference, balancing the comparative risk, I should be disposed to put the matter to the test; since in case of failure, the more hazardous operation of removal can still be done. In my opinion, with the option before her, it would be neither wise nor charitable to give a patient strong advice in favor of an immediate cutting operation. Experience seems to show that there is a group of cases, numerous as they are troublesome, of chronic metritis with enlargement and surrounding deposits, which may be cited as pre-eminently eligible for electric treatment. They are, as regards the patient, painful and exhausting. To the judicious surgeon they are exasperating by their rebelliousness, and in some rash hands they have opened the way to practice more lamentable than the disease. It will be one of the crowning merits of electro-therapeutics if proved to be equal to bring relief to these patients. Recent reports give good reason to hope that this end may be realized by a careful use of the positive galvano-puncture. We have not, I am inclined to think, taken heed enough of the work of Tripier and Apostoli in reference to various disordered states of the uterine appendages. The soothing effect of the vaginal or uterine bipolar application of the induced current in some distressing forms of ovarian neuralgia and vaginismus is said to be marvellous and enduring.

As a last word, I may say that we are face to face with an important revival; and though some American surgeons have gone before us in its acceptance, nowhere more than in our own country has there been shown an open-minded readiness to weigh fairly all the evidence which Dr. Apostoli has to set forth in support of his system. In London we have heard, through the medical journals, of some failures, of one death, and of more than one accident, probably due to the inexperience of the practitioners. But we have far more encouraging reports from Edinburgh; and if some members of this Society who combines sufficient knowledge of electrical science with practical experience of the diagnosis of uterine diseases, and of the treatment by other methods, will carefully put to practical test the conclusions already arrived at by Dr. Apostoli, I am very hopeful that the result will not be disappointing.

At the conclusion of Sir Spencer Well's paper, Dr. Apostoli said he had but one word to add to what had been said by their illustrious master, Sir Spencer Wells. In the month of August, 1885, he (the speaker) wrote as follows: "If the electrical treatment of fibroid tumors of the uterus is not destined to altogether replace the knife, yet it ought, when its safety and efficacy are taken into consideration, to be counted a most useful auxiliary to surgery; whether it is to be used only for women upon whom it is not advisable to operate; or whether it will delay, for all, for a time at least, or perhaps render unnecessary an operation

which is always dangerous." These words remained true to-day. After an experience of nearly six years, during which time more than 500 patients had been treated, and more than 6,000 applications of electricity had been made, he was able to confirm what he wrote three years ago, and to say that his method was not in itself dangerous. It was also necessary, however, to state that it might become full of danger in inexperienced hands, and, if antiseptic precautions were not carried out, or if the rules which he had laid down were not attended to. These rules were as follows: 1. Never to employ large doses suddenly, but always gradually, and according to the amount of tolerance which was shown by the uterus. 2. In all suspected or recognized inflammations of the uterine appendages it was necessary to redouble the precautions and to lessen the doses. He repeated that his method was almost constantly efficacious in relieving symptoms. The electrical treatment did not pretend to make a radical cure of fibroid tumors of the uterus; it was content to diminish their bulk, to relieve the patients, and to make them feel well. In the presence of an operation such as that of hysterectomy, always difficult and accompanied by great danger, and of that of oöphorectomy, an operation not always possible nor always efficacious, the electrical treatment, in its simplicity, in its freedom from danger, aspired legitimately to place itself before all gynecologists as a means of treatment of fibroid tumors of the uterus, palliative in the first place, but also one which allowed us to assure our patients that they would almost certainly remain in good health.

Dr. Playfair said that few subjects in gynecology had of late years caused more interest than Dr. Apostoli's work, and he was glad to find it made the subject of public discussion, so that the experience of those who had been working at it should be learned. There could be no doubt that any means of treating certain classes of fibro-myomata, which would prevent or postpone the formidable and mutilating operations of hysterectomy and removal of the uterine appendages, would be an enormous gain, even if the results fell far short of those claimed for his methods by Dr. Apostoli; and great credit was due to him for his energetic work, which had thoroughly roused the interest and attention of the profession. Being anxious to see for himself what Dr. Apostoli was doing, he (Dr. Playfair) had visited Paris at the end of last summer, and had not only been received by Dr. Apostoli with great courtesy, but had had free access to his carefully-reported cases, and opportunities of personally investigating and examining many of his patients. One thing he was perfectly satisfied of, that although Dr. Apostoli might be an enthusiast, and possibly given to overestimate the value of his treatment, he was at least an honest and convinced enthusiast. Certainly in this he did not stand alone, for without enthusiasm in medicine no progress was ever made. They did not need to go beyond that room for an example in point, for had Sir Spencer Wells not been an enthusiast in ovariotomy, in the face of the most unfair and prejudiced opposition, where would be the great name and world-wide reputation he had achieved for himself? As to the criticisms on Dr. Apostoli's method, all he had heard were based on mere theory or on second-hand gossip. To this sort of objection no sensible man would give a moment's attention. What was wanted was careful and unbiassed personal investigation and accurately recorded facts, without prejudice

either for or against. If Dr. Apostoli's treatment was subjected to tests such as these and found wanting, then by all means let it be condemned, but not condemned untried and unheard. Since October he (Dr. Playfair) had been endeavoring by numerous trials to form an estimate of its value. In so short a time no very positive conclusion could be arrived at, especially as to permanency of results, but he had at least had a fair opportunity of testing it. He had not used it in anything like the number of cases in which he might have tried it, as he selected his cases, and did not wish to use it indiscriminately. With the permission of the Society he would say a few words: (1) as to the cases in which it was applicable; (2) as to its possible dangers; (3) as to its application, and the difficulties connected with it. 1. The cases in which it has been most talked of were those of fibro-myomata, attended with hemorrhage, and certainly this was its most important and promising application. Now, out of the cases of this kind he had treated, most had been benefited; in some the hemorrhage had been entirely checked, but in one or two he was bound to say that no appreciable result on the hemorrhage had followed. It was impossible in such a meeting to enter into details, which he might possibly publish elsewhere, but such was the fact. Perhaps he might fairly say that in three cases out of four the hæmostatic results had been distinctly good. The action of the positive current in this way was, no doubt, that of a chemical cautery, and he was inclined to think that the failures were due to the difficulty of bringing the sound, in certain cases, into accurate apposition with the uterine cavity. Some more perfect mechanical appliances in this direction were certainly required. With regard to non-hemorrhagic fibroids, the number in which any interference was needful was very small. Indeed, it was only when pressure symptoms were well marked that it was justifiable to do anything. He had, therefore, only treated two cases of this kind. In one a large tumor had practically entirely disappeared, but with a very serious amount of constitutional disturbance presently to be referred to. In the other, then under treatment, the patient, whose tumor was impacted in the pelvis, and who had not micturated for a long time in consequence of pressure on the urethra, was already able to pass her own water. The cases in which he had found the most remarkable and satisfactory results were those of severe dysmenorrhea, and bad chronic endometritis, with profuse glairy discharges. In them the results were really very remarkable, and some cases of both kinds, which had resisted years of treatment, had apparently been perfectly cured after only three or four applications of the electro-negative currents. Thus, three cases of intense dysmenorrhea were treated, the patients writing of themselves as follows: (*a*) after four applications, "entirely free from pain;" (*b*) "quite painless;" (*c*) "hardly any pain." Of the application of the continuous current to absorb inflammatory deposits, and of the Faradic current to relieve pain, he had not had sufficient experience to offer an opinion. The Faradic current he had found very useful in restoring the menstrual discharge in one case of amenorrhea of seven years standing, in another it had failed. 2. With regard to the alleged dangers, he believed them to have been greatly exaggerated. Dr. Keith's experience was of itself sufficient to prove this. Unquestionably, however, like all potent agents, electricity might do serious mischief if rashly employed by those unskilled in its use. He had only seen two

cases in which the slightest irritation or mischief had followed its use. One was a case of pelvi-peritonitis with pelvic exudation, in which he was conscious that he had used it too soon, and a fresh but not serious exacerbation had followed. The other was the case of fibroid above referred to. This was a dense fibromyoma he had watched for ten years, steadily growing. It nearly filled the pelvic cavity, and reached above the umbilicus. He had made six electro-negative punctures in Douglas's pouch. These were followed by pyrexia, accompanied by a profuse purulent offensive discharge from the uterine cavity at intervals of two or three days. The tumor had entirely disappeared, but the constitutional disturbance had certainly been considerable. That there were certain risks must therefore be admitted; he did not, however, believe them to be prohibitive, and time would probably show us what they were, and how they were to be avoided. 3. As to the alleged difficulties, they certainly were not of a nature to prevent any well instructed gynecologist from adopting the practice. He must protest strongly against the statement that had been made that this class of work should be carried out by a professed electrician. Anything more absurd he had never heard. The manipulation of the apparatus, so far as the electricity was concerned, offered no difficulty at all. Any intelligent student could learn it in half an hour. The selection of proper cases, however, the passage of the sound, etc., required a profound gynecological knowledge, as Dr. Apostoli had well remarked; and beyond any question this method of treatment never could be widely and indiscriminately employed. If not carefully used, and only in suitable cases, much mischief would most certainly follow. Dr. AVELING said he was sure all who, like himself, were employing electricity for the treatment of uterine tumors, would feel fortified in their opinions, and encouraged to proceed in their work, by the fact that Sir Spencer Wells sympathized practically with them. All would remember the remarkable paper which Dr. Keith published in the *Journal* a short time since, in which he said he should consider himself guilty of a criminal act were he to advise any patient to run the risk of her life by hysterectomy, before having given a fair trial to electricity; "even," he adds, "if he were sure the mortality would not be greater than that which hysterectomy has given in his private practice — under 4 per cent." No one could say Sir Spencer Wells and Dr. Keith had taken up the electrical treatment of tumors because they were afraid of operating. Their exploits in abdominal surgery were known all over the world. Their support of electrical treatment was therefore all the more valuable. The galvanic battery was, as already pointed out, used by Sir James Y. Simpson forty years ago for the discussion of a uterine fibroid, and one of the most healthy signs of the electrical method was the gradual development of it since that time, every step enabling the operator to employ it with greater safety and efficacy. The two greatest modern improvements had been the use of the galvanometer, and the substitution of the dispersing abdominal electrode for the dangerous abdominal galvanopuncture. two points insisted upon by Dr. Apostoli. The speaker said it was quite amusing to observe the flutter of excitement which the recent rapid advancement of electrical treatment had caused among some distinguished abdominal sectionists. From their uncompromising opposition, and their abuse and ridicule, one was almost inclined to think these gentlemen feared their occupation was gone.

They need not be alarmed; there would always be a place for hysterectomy and oöphorectomy, as there seemed every reason to believe there would be for electrical treatment. An endeavor was now being made to determine what that place should be. If it were proved that it could cure a patient symptomatically—could stay hemorrhage, relieve pain and diminish bulk, in fact, could remove the symptoms which brought the patient to the medical man for help—how many would propose and how many submit to the more fatal and radical operations? Complaint had been made that we were acting empirically, and were all in the dark as to the action of the galvanic current on tumors. This might to a great extent be granted, but it was no argument against its use. Who knew how quinine cured intermittent fever? If clinical experience proved that a patient having a uterine tumor could by electricity be relieved of her symptoms, and her existence rendered useful and comfortable, we were bound to employ the galvanic current, and might contentedly wait until science explained what was the effect of the caustic action of the pole, and how the catalytic interpolar current acted in producing atrophy of the tumor. Dr. Aveling stated that he had used the electrical treatment in several cases, and had met with such satisfactory results that he intended to continue its employment. He had met with no symptoms resulting from it to give him the least anxiety. He believed that most of the accidents reported were due to ignorance, carelessness or impatience. Sir Spencer Wells had not mentioned the use of a rheostat in his paper. A water-rheostat was a great comfort to the patient. It obviated the succession of shocks caused by adding or taking off cells, while increasing or reducing the intensity of the current. A useful dispersing electrode was one made of a flat foil of copper wire, placed between a layer of moist spongio-piline and amadou. An important practical point was that the skin of the abdomen should be thoroughly saturated with warm water before using electricity. Dry epidermis was a potent non-conductor. The clay was difficult to keep sufficiently moist and was dirty. Later in the discussion, Dr. Aveling dissented from the opinion that the interpolar current was inert, and asked Dr. Parsons whence he thought the ions were derived which arrived at the poles during the passage of the current.—Dr. Inglis Parsons congratulated Dr. Apostoli on his success. He was not, however, able to agree with Dr. Apostoli's theory of an interpolar action. There were no scientific proofs that any change occurred between the poles. The speaker had tried several experiments, thinking to prove the theory, but had found it untenable. The first of these was on the web of a frog's foot. At the negative pole a collection of hydrogen gas occurred, at the positive a coagulation, but between the poles the circulation proceeded as before, and no change in the tissues could be found under the microscope. A similar result took place when a current of 250 milliampères was passed through a small fibroid for one hour and a half soon after its removal from the body. Sections made by Dr. Rutherfoord showed destructions of all tissues, except the fibrous, in contact with the poles, but no interpolar alteration could be discovered. The principle also held good with saline solutions. If three glasses filled with a standard solution of iodide of potash were connected by damp cords, and a current was passed through for several hours, the solutions in the end glasses containing the poles were decomposed, while that in the centre, or interpolar,

glass remained unchanged. Not only was there no interpolar decomposition, but the transport of elements from one pole to the other had apparently no effect; but the latter action required further investigation. These results corresponded with Dr. Parson's clinical experience at the Chelsea Hospital for Women. If a tumor could be punctured, it soon disappeared. He had cured a case in this way that was not amenable to surgical treatment. Nothing remained of the tumor but a diffused mass one-third the size of the original. This probably consisted of fibrous tissue, which, as he had shown, was not decomposed by the current. The patient left the hospital three months ago, and was seen recently with no return and in good health. With regard to hemorrhagic cases, he found that unless the electrode was brought into direct contact with the whole of the bleeding surface, the hemorrhage would continue. In a case now under treatment, the electrode was passed only half the full distance into the uterus, and the hemorrhage continued, even after twelve applications. But as soon as it was passed the full distance, the hemorrhage commenced to diminish. This was no doubt due to the fact that the action of the current was chiefly at the poles. With regard to dosage, he found a distinct difference between those cases in which the current passed first through the uterus, and those in which it passed directly into the tumor. In the latter case a much larger dose could be used even with susceptible patients. To one he had given as much as 250 milliampères every other day for thirty minutes, with a most successful result. If the current passed through the uterus, the restrictions laid down by Dr. Apostoli must be strictly followed.—Dr. Heywood Smith, in answer to the President's invitation, said he had but little claim to speak on the subject, as he had no personal experience of Dr. Apostoli's treatment; nevertheless, as they were all present that evening to learn, he thought that some questions might elicit some instructive answers. He wished to know the way the electric current was intended to act, whether as a disintegrating force or as an escharotic. If the latter, then any cautery would do to start destructive action, as had been the case in some of the cases reported, namely, one by Dr. Holland, and that just mentioned by Dr. Playfair, where evidently the curative process was proceeding by the sloughing away of the tumor. If the current acted as a disintegrating or decomposing process, in what way was the *débris* thrown off or absorbed, as fibrous tumors were exogenous, not endogenous growths, and their vascular and lymphatic systems were at the circumference of the tumors? How, then, was the disintegrating process, which was commenced round the needle which was thrust into the middle of the tumor, placed in relation to the vascular system at the circumference of the tumor? Then, in cases of subinvolution, with chronic endometritis and menorrhagia, what was the action of the current on the lining membrane of the uterus, and did it produce any escharotic or other effect on the membrane and on the uterine follicles, or did it, by its stimulus, induce greater tonicity of the uterus, and so lessen the hemorrhagic tendency?—Dr. Elder (Nottingham) said that his first duty was to thank the President and members of the Society for allowing him to take part in the important discussion—a permission which he would be wanting in gratitude to Dr. Apostoli for his kindness to him during a recent visit to Paris, if he had not gladly taken advantage of. The necessarily short time at his disposal would be

best occupied by first alluding to three of his most successful cases under this treatment, and then generalizing upon the other cases which had been under observation. Case 1.—Mrs. F., 37 years old, came with a history of flooding for two years and severe pressure symptoms, totally incapacitating her for housework. A solid uterine growth filled the pelvis, and reached midway between the umbilicus and the xiphoid cartilage. Treatment was commenced at the end of July by galvano-punctures (negative), and continued at intervals, usually of a week, till Christmas, with the following results: The growths had decreased by quite a third, so that her clothes, which on her first visit were fastened by connecting tape, now overlapped; the periods had become normal as to time and quantity; the pressure symptoms disappeared, and she was able to do her work as before-times. From time to time she had been seen, and the improvement was maintained. Case. 2.—Mrs. W., 48 years old, consulted him for flooding of five months' duration, due to an interstitial myoma in the posterior wall. The uterine cavity measured four inches; seven intra-uterine applications of the galvano-positive electrode caused disappearance of the tumor, arrested the hemorrhage, and reduced the length of the cavity to three inches. Case 3.—Mrs. M., 35 years old, had suffered for several years from bouts of flooding, which during the past twelve months had laid her up for weeks together, and totally disabled her for work. The uterine cavity measured three and one-half inches, and a uterine growth occupying the right iliac fossa and reaching above to a level with the anterior inferior iliac spine could be well defined. Treatment by galvano-positive intra-uterine applications was begun in January, and continued once a week till now, with the result of bringing about menstrual regularity, removing pressure symptoms, and also restoring the patient to very good health. In all, the treatment had been employed by him in forty cases, including some examples of subinvolution, endometritis, peri-uterine exudation, etc., without danger to the patient, unless in a case which would again be alluded to, and with only one distinct failure to relieve more or less the symptoms for which the patients consulted him. The failure occured in a woman suffering with a uterine myoma, in whom complete removal of the tubes and ovaries had not arrested the draining, nor had the galvano-positive applications any better effect. The only case which gave him any anxiety was that of a middle-aged woman enfeebled by long continued hemorrhage and pressure symptoms due to a large uterine growth. In September of last year, after the third galvano-puncture, she persisted in walking home, a distance of a mile, on a very wet night, and took a chill. Some four months afterwards, she died of septicæmia; but whether or not after this interval and with the utter neglect of common-sense precautions on the part of the patient, this casualty could fairly be laid to the charge of the treatment, must be left to fair, impartial judgment. So far as his experience of this treatment had gone, he believed it to be not only a distant advance on the treatment of myomata by rest, diet, drugs, etc., but one which would in most cases supercede removal of the appendages and hysterectomy; and our plain duty in all cases where its application was possible was to offer to our patients this alternative. Dr. Travers asked what was meant by "tolerance of the uterus." Dr. Apostoli replied that where there was a simple fibroma of the uterus in a healthy woman the uterus was made more tolerant than where there was inflammation of the annexes, or where the uterus was

irritable. In the latter case much more care was needed in applying electricity. It was best to begin with small doses and short sittings. If he could introduce a sound, he employed that first. MR. SKENE KEITH said that although sufficient time had not elapsed since Dr. Apostoli began this treatment for them to pass judgment upon it, yet he could say, from an experience of nearly 3,000 applications, that the results—and some of these results had already stood the test of eight or nine months—had been such that Dr. Keith, whose mortality after hysterectomy appeared to be the smallest of any operator, had not found it necessary to advise either that operation or even the less serious one of removal of the ovaries since his visit to Dr. Apostoli last year. Since June, Dr. Keith and himself had under treatment 92 cases of distinct fibroid tumors of the uterus, in fact, everyone where there were symptoms had been treated; and, without entering into details which would be published later on, he might say that, on the whole, the results had been extremely satisfactory. Of those 92 women, 76 had had more or less of the ordinary treatment without receiving any marked benefit. The great disadvantage of this treatment was the length of time it took, though not often longer than a visit to a watering-place, and the amount of work which fell on the physician or surgeon. On the other hand, one great advantage was that, when necessary it could be carried out in the out-patient room of any hospital, and that the patient could attend to her ordinary duties exactly the same as usual. They had already heard of operation being required when this treatment had failed. This might be so, but he would ask that a distinction should be made between Dr. Apostoli's and various methods of treatment which went by his name. For example, a friend had told him (the speaker) that he had not read Dr. Apostoli's papers; another thought that he had made a discovery when a patient told him that he (Mr. Skene Keith) had moved the sound over the surface of the uterine cavity. Need he say that their results had not been brilliant? The practice of Sir Spencer Wells of publishing every case of ovariotomy had been followed by Dr. Apostoli in the thesis of Dr. Carlet, published in 1884. They had had full details of about 100 cases, and it was by such means that the value of the electrical treatment of fibroids had to be decided. Dr. Keith regretted much that he could not be present, but he (the speaker) had his authority for saying that so long as they could get the results they had had by electricity, he had no intention of advising any patient to run the risk of dying after hysterectomy, or after removal of the ovaries for fibroid. DR. WILLOUGHBY FURNER inquired as to which pole of the battery should be used in a case of uterine fibroid that did not bleed. DR. APOSTOLI replied that the positive pole should be used in hemorrhagic cases, on account of its hemostatic properties. In non-hemorrhagic forms the negative pole should be employed, as being more active.

Rachitis in the Fœtus.

LAURO presented a paper to the Italian Obstetrical and Gynecological Society at Naples, April 9, 1888, on rachitis in the fœtus. Its conclusions (*Archivio di Patol. Inf.*, September, 1887) are as follows:

1. The changes to which the skeleton is susceptible during intra-uterine life may have different origins, rachitic anomalies not being present in all cases, as is seen in the so-called micromelic rachitis.

2. Rachitis of intra-uterine life may be spoken of as a confirmed fact, established by the anatomical and anatomo-pathological lesions of the bones in new-born children.

3. Most of the cases which are described as micromelic rachitis are to be considered as cases of true rachitis, which is quite a different condition from the former.

4. Micromelic rachitis consists in a diminution in the size of the bones, which is produced either by the interposition of periosteum between the epiphyseal cartilages and the diaphysis, or by defective cartilage formation.

5. The changes in intra-uterine life which are due to rachitis are similar, and have the same origin, as those which are encountered in extra-uterine life.

6. It does not appear to be necessary and indispensable in intra-uterine rachitis that the bones should be quite formed to enable this disease to invade the fœtal skeleton, which is not a completely ossified structure.

7. Absence or irregular deposition of calcareous matter, while it resembles true rachitis, and is considered as such by some, does not satisfy the present knowledge upon this subject, nor explain all the facts observed in connection with it.

8. The lesions which are met with in the skeletons of these fœtuses cannot be attributed to lesions of nervous centres and consecutive muscular contraction, notwithstanding the fact that there may be some associated defect of the bones (club-foot for example) to which such an origin is attributed.

9. Moral emotions of the mother and the exertions of the imagination can have no influence with reference to the vices of conformation which are under discussion. Such ideas are attributable only to credulity and superstition.

10. Most of the observations which have been made tend to show that the physical condition of the mother is a fact entirely extraneous to the development of the disease; and yet the author's opinion is that the existence of rachitis in a woman is a predisposing cause of its development in her offspring, this opinion being based upon observation and reflection.

11. Cases of intra-uterine rachitis in connection with mothers of faulty conformation would be more numerous if all the children of rachitic mothers, especially of those who live amid bad hygienic and dietetic surroundings, were examined with reference to the state of their bones; and those cases which have been looked upon as not influenced by the mother's condition would be described as true rachitis if those maternal conditions, practical rather than theoretical, which explain the essence and genesis of the disease, were sufficiently considered.

12. The lesions of continuity which are sometimes found upon the bones of rachitic new-born infants should be regarded as evidences of fractures which have occurred in consequence of the great friability of the bony tissues in the course of their calcification, or in consequence of the insufficient admixture of calcareous salts.

13. These fractures may vary in number, and may occur in all the long bones, and occasionally in the flat and short ones. They may be complete, incomplete and even longitudinal. At the time of birth they may be consolidated, in process of consolidation, or united by pseudo-arthrosis, with or without evidences of crepitus.

14. Those cases which have heretofore been described as cases of annular rachitis have probably been due to fractures in which there has been consolidation by periosteal callus, either wholly or in part, the callus appearing as a circular enlargement of the bone.

15. In the severer forms of intra-uterine rachitis, not only are changes found which cause deformities of the limbs, but also others of a more serious character, some of which may so deform the thorax that respiration will be interfered with, and others which leave the cranium incomplete, and render the fœtus incompetent to perform the functions of extra-uterine life.—*Archives of Pediatrics*, April, 1888.

Syphilis of the Endometrium.

In a paper read before the Baltimore Gynecological and Obstetrical Society, December 13, 1887, DR. T. A. ASHBY says: There are few, if any, of the organs of tissues of the body which are not involved in one way or another in the various manifestations of syphilis, when once the virus of this malady becomes a constitutional infectlon.

That the syphilitic poison has predilections for certain organs and tissues is a well-known fact. The manifestations of this disease are largely influenced by bodily conditions and constitutional states. Thus anæmia, chlorosis and general debility favor the outbreak of syphilitic lesions which might have pursued a milder course, or been kept in total abeyance, by a condition of health. Pregnancy is supposed to exercise the same influence upon the syphilitic woman. The character of this influence is modified largely by the age of the syphilis. Thus a woman who contracts syphilis during pregnancy is affected differently from one who contracts the disease prior to conception. In the first case the predisposition to premature delivery is far less potent than in the second.

Secondary syphilis is almost sure to manifest itself in the syphilitic woman when the disease is contracted prior to conception or during the act of conception. Olshausen mentions that among 657 syphilitic women, 231 miscarried, while 426 were delivered at term of living and dead children. Parvin states that at Lourcine 260 aborted out of 416 pregnant syphilitic women.

Abortions induced through syphilitic influence may be brought about either through maternal or fœtal infection. A woman previously inoculated with syphilis will abort more readily than one who contracts the disease during pregnancy, and the danger of abortion seems to be in ratio to the period of infection. Thus contagion communicated at the time of fecundation is more likely to lead to a separation than where the poison has been introduced after the fourth month. Syphilis may be communicated through the father to the fœtus, which may or may not result in its death and separation, and the mother may escape infection. On the other hand, the mother may have become infected through the fœtus. A woman may have secondary syphilis and pass through the entire term of pregnancy without any manifestation of the disease in connection with the reproductive organs, but this condition of exemption may be regarded as an exception to the general rule that syphilitic women are almost sure to abort.

When pregnancy becomes established in the syphilitic subject it invites a manifestation of the disease at the point of contact of the fœtal and maternal

tissues. The decidua becomes involved in a condition known as *syphiloma of the decidua*, and the placenta is so modified in its structure and mode of development as to constitute a condition recognized as placental syphilis. The extent of these changes which take place in the decidua and placenta indicates the result of the syphilitic involvement. Separation may or may not occur according to the extent and influence of the poison upon the maternal and fœtal tissues. The placenta may be affected throughout its entire thickness, or only either the maternal or the fœtal portion. When the infection occurs through the mother, the maternal portion is that which is chiefly involved and *vice versa* when the disease approaches through the fœtus.

The local manifestation of the syphilitic virus in the decidua, as a general rule to which I know of only two exceptions, ceases as soon as separation takes place, whether by miscarriage or labor at full term. The degenerative changes which follow the termination of gestation seem sufficient to remove the involved endometrium. This process must almost invariably take place. I have been unable to find any references in the literature of this subject to a continuation of the syphilitic manifestation upon the endometrium after labor or miscarriage. If observers have noted this condition they have been singularly remiss in calling attention to it. That a condition of continued involvement of the mucous membrane at the placental site does occur, my experience with two cases herein related fully confirms.

The condition observed is one of continued proliferation of epithelial tissue —a highly luxuriant granulation, if I may so term it—which returns again and again after removal, resembling in this respect the proliferative exfoliations of an epithelial cancer. The sole origin of this condition, I have referred to secondary manifestation of syphilis in the endometrium at the placental site or in this neighborhood. The disease under consideration has followed, in the two cases under my own observation, a miscarriage which was referred to the influence of the syphilitic poison. In case two there was a return of the endometrial trouble, after an interval of three years, from date of former treatment, which could have no reference to any other known causative influence. In my opinion, syphilis was the entire cause of an inflammatory condition of the endometrium which was followed by hyperplasia of the elements of the decidua, a condition which has been described by De Sinéty as a fibroid degeneration of the villi of maternal syphilitic origin. Why the latent influence of the syphilitic virus should have manifested itself in endometrial involvement I am unable to explain any more than the various other singular anomalies of this disease which do not seem susceptible of rational solution. We can the more readily understand the primary outbreak of secondary syphilis in the decidua and placenta during gestation and the continuation of the syphilitic influence upon the endometrium after miscarriage, since here we have the possible retention of placental tissue as a probable nidus for the subsequent outgrowth of granulations. In this instance the influence of the poison is simply continued until overcome by local and constitutional treatment.

The subsequent development of syphilitic lesions upon the endometrium I can only account for upon the general assumption of a local dyscrasia in connection with the lining membrane of the uterus, inviting a concentration of the specific

influence upon this membrane, which resulted in hypertrophy of the glandular elements and a degenerative change in the epithelial lining of the uterine cavity.

In case one, in which the local influence was continued after the separation of the fœtus, the lesions were localized, that is, in seeming relation with the placental site. In case two, the entire lining membrane of the cavity seemed involved though the process in this case was more tractable to treatment than in case one.

I present the histories of these cases.

Mrs. A., 24 years old, primipara, miscarried between the fifth and sixth months of pregnancy. Prior to this event she had been treated by her attending physician for an indurated chancre and subsequent mucous patches on her vulva and labia minora. This disease she had contracted from her husband during the early weeks of married life. She was not informed as to the nature of the affection and has been kept in ignorance of the specific character of her trouble out of deference to her domestic relations. Following the miscarriage, a portion of the afterbirth was retained, but this was speedily removed with the curette. Hemorrhage, however, continued for some five or six weeks, and during this time the curette had been employed two or three times, each time removing lumps of degenerated mucous membrane and vegetations. The uterus remained large, subinvoluted, and in a very relaxed condition, and as a result of frequent intra-uterine applications and curetting, a mild metritis was induced, which was followed by elevation of temperature, violent pain and profuse muco-purulent discharge more or less tinged with blood. Recognizing the specific history of this patient the family physician made use of anti-syphilitic treatment with almost negative results. Mrs. A. continued to run down and by copious losses of blood was greatly reduced in flesh and strength. Her physician losing confidence in his own intelligent treatment of the case requested me to see the patient in consultation, and then insisted upon my taking entire charge of the case. The diagnosis, already established, was confirmed and an effort was made to relieve the distressing symptoms which at this time were referable to the constant and profuse hemorrhage, subinvolution, uterine colic and general debility. Ergot, which had previously been administered, was again employed. The uterine cavity was carefully curetted and large masses of epithelial tissue and vegetating fungosities were removed. Astringent applications, iodoform, tannin and other agents designed to influence the tissues through local effect, were employed. The result of this method was temporary in its effect. Hemorrhage would cease for a few days, but the least bodily exercise would cause its reappearance. The granular condition of the endometrium would again and again reappear after constant curetting, employed at intervals of one or two weeks. The tendency to a reformation or outgrowth of fungus neoplasms was so constant that it was next to impossible to suppress them for a longer time than a few days. In addition to the local treatment, which was heroic enough to answer every temporary purpose, ergot and iodide of potash and general tonics were administered thrice daily in large doses. Mercury had been employed by my predecessor and I simply gave the iodide of potash. This condition of the endometrium continued off and on for over three months, during which time I employed the curette frequently and made constantly applications to the endometrial surface. Finally, the tendency to proliferation of fungus tissue began to diminish and I had the

pleasure of witnessing a gradual shrinkage in the size of the uterus, a contraction of its walls and returning healthy condition of the endometrium. The menorrhagia, which continued off and on for over four months, finally ceased and menstruation became normal. It has continued so up to the present time now five months since recovery. The involution of the uterus is not as yet complete, but the uterine cavity is contracted and more in keeping with the normal shape and size. During the early progress of the case the cavity was so large that it would have contained easily a medium-sized orange.

In this case the tendency to reformation of granular tissue was more marked than I ever witnessed. In some of its aspects the proliferation of neoplasms resembled a malignant degeneration; but this idea was dismissed, and the theory of syphilitic influence was accepted as in full accord with the history of the case.

The explanation seems to be this: Under the influence of specific disease, the placenta and decidua were primarily involved, and separation took place, which resulted in the miscarriage of pregnancy and the removal of the fœtus and secundines. The decidual membrane remained behind, involved in syphilitic disease, and, in its exfoliation, continued to develop neoplastic tissue. The process of degeneration thus established was continued under the influence of the syphilitic virus. As fast as one set of neoplasms was removed, a new set came on to take its place; thus continuing the pathological state of the endometrium. I am convinced that the influence of iodide of potash was a potent factor in the treatment of this case. This was shown on several occasions. It became necessary several times to discontinue the use of the drug in consequence of its effect upon digestion. During these intervals, whether from a bias in my own mind or actual fact, I was led to believe that hemorrhage was more severe and the recurrence of the neoplasms was more marked. I had never before witnessed a condition of endometrium at all similar to that present in this case, and I have associated the influence of syphilis with the causation of the condition herein described. In my opinion a non-syphilitic endometrium would not behave in this manner. In cancerous disease a similar condition might be observed; but the recovery of my patient disproves this assumption, whilst her history gives strength to the syphilitic theory. Whilst this case was fresh in my mind, a second case came under my care, which confirmed the view expressed above in regard to the influence of syphilis upon the endometrium. The extent of the involvement was neither so great nor so intractable as in the case of Mrs. A., but the history of the patient clearly points to a syphilitic influence extending through a series of years, and secondarily involving the endometrium after a lapse of some three years.

Mrs. B., 27 years old, primipara, was married six years ago. Some six months after marriage she became pregnant, and about the sixth month of utero-gestation she miscarried, without any assignable cause referable to objective conditions. Subinvolution, menorrhagia and metrorrhagia followed in the wake of the mishap, and for many months the health of this woman was greatly lowered.

She was treated both locally and constitutionally by several physicians with the result that hemorrhage ceased, but subinvolution remained. Her husband, a gentleman of considerable intelligence, had contracted syphilis some time prior

to marriage, for which he had been treated, with what he presumed to be entire success. Believing himself cured he entered into matrimony only to find the germs of the disease aroused into new activity by the new state. He almost immediately inoculated Mrs. B. with the poison, which became manifest in constitutional disturbance as well as in the local influence upon gestation. Following the miscarriage, which was the first explosive effect of the syphilitic poison upon the part of the latter, both husband and wife were placed under syphilitic treatment by a physician in New York City, to whom they both applied. The wife was kept in ignorance of the nature of her disease, and, of course, that of her husband, and this ignorance now holds. The successive years of struggle with syphilitic manifestations by husband and wife I shall not discuss here, but the history is not an uninstructive one. Outward manifestations were so successfully combated with antispecific remedies that a complete check was placed on these. With the exception of sore throat, slight loss of hair, and rheumatic pains, the husband has escaped. The wife continued to bear the legacy of an interrupted gestation in the shape of an entailed uterine disease. With the exception of backache, pelvic pain, leucorrhœa and general debility, no symptoms had occurred during the past three years referable to the uterus until six months ago. She had never conceived during this time. About May last, without any exciting cause, uterine hemorrhage became profuse at the period, and during the intermenstrual period there was a free loss of blood lasting over two or three days. Menorrhagia and metorrhagia were both established. This condition continuing in spite of the use of ergot, and other ecbolic agents, the husband became alarmed, brought his wife to this city and placed her under my care. Upon examination the uterus was found to be unusually large, flabby and relaxed. The probe easily entered three and a half inches. The cavity was open and distensible, readily admitting of the free rotation of the sound. The cervix was patulous and eroded, the edges gaping from an old bilateral laceration. The mucous membrane of the cervix and body was highly granular, and bled profusely the moment it was touched. The introduction of the curette brought away large masses of epithelium and gelatinous vegetation, which clearly accounted for the free flow of blood. Hemorrhage stopped the moment the curetting ceased; in fact before it was complete, for the uterus contracted so firmly under this stimulus that the blood supply was immediately cut off. Within less than a week's time there was a return of hemorrhage and the highly vascular condition of the endometrium reappeared. The curette was again introduced and again a mass of epithelial tissue and vegetations was removed. Under this second curetting hemorrhage again ceased, and notwithstanding the fact that daily applications of tannin and glycerine and iodoform were made to the entire endometrium, the tendency to reformation of the vegetations went on, and curetting again became necessary. These neoplasms were again removed in less quantity than in the first instance. Local applications were made to the uterine cavity during the three subsequent weeks before the mucous membrane assumed an approximately normal condition. Iodide of potash was given in 15 grain doses *ter die* during the entire period, and I have reason to believe its influence was direct.

I am unable to account for the condition of the endometrium observed in this case save on the ground of a syphilitic influence. Would a non-specific

endometritis behave in this way? I confess my own experience has never presented a case at all similar. Whilst I have frequently met with granular conditions of the endometrium following miscarriages, and in the non-gravid state they have almost invariably responded to treatment when first instituted and have shown no such tendency to continued reformation of neoplasms as in the two instances cited. The knowledge of a syphilitic history in these cases induces me to refer the influence to the disease in question, and leads me to formulate the law that in all cases of obstinate and persistent endometrial involvement the possibility of a syphilitic influence should be borne in mind.

I cannot but believe that the assumption of a specific influence as an etiological factor in obstinate conditions of endometrial disease may lead to the employment of constitutional treatment *pari passu* with the local, which may secure results at variance with our expectations. It is well-known that many women have specific disease of which they are wholly ignorant, and we may readily suppose that in a certain number of this class the influence of the specific poison may manifest itself in an impression upon the endometrium either through repeated miscarriages, through catarrhal states inducing, it may be, sterility, or in conditions allied to those described in the cases herein related. I have no desire to exaggerate the importance of a syphilitic influence as an etiological factor in uterine disease, but I deem the facts presented of sufficient interest and value to arrest attention and to invite a more careful consideration of this subject than it seems to me to have received. If others have noted this condition and will throw greater light upon the same than has been attempted in this brief communication, the author will be deeply interested in their contributions.

V. SURGERY.

Hebra's Water-Bed.

At the meeting of the Surgical Section of the Suffolk District Medical Society, March 7, Dr. Otis K. Newell read a paper on "The Surgical Use of Hebra's Continual Bath or Water-bed," of which he had had personal observation. In addition to its use in the treatment of eczema and other cutaneous diseases, the continual bath has been used with success in the treatment of gangrene, bedsores, etc., and more especially severe burns in which its beneficial effects are especially noticeable. Patients are sometimes kept in the water for a very long time. One patient was in the bath 385 days. They are removed only for evacuation of the bowels and bladder, and they take their meals and sleep when in the water. The danger of drowning is much less than seems apparent at first thought. If a patient is very weak the precaution may be taken to support him by a bandage passing around the body under the arms, which is secured at the head of the bath to prevent his slipping down the inclined portion that raises the head out of water. Only the palms and soles suffer, and these only during the first few days. They become shrivelled and folded like a washerwoman's hands, and the condition is much alleviated by applications of substances of a greasy nature. A papular eruption occurs on the parts which are both in and out of the water, as the arms and thorax. This, however, heals spontaneously. Hebra's beds contain 675 litres of water. When a patient first enters the bath the temperature of the water is 30° C. (86° F.), which seems warm to him. The heat is gradually raised to 35° or 37° C. (95° or 98.6° F.), which is kept constant by a simple arrangement by means of a kerosene lamp.—*Medical Record*, April 28, 1888.

Treatment of Fractures of the External Condyle of the Humerus.

Dr. George W. Gay, Visiting Surgeon, Boston City Hospital, in a paper read at the meeting of the Surgical Section of the Suffolk District Medical Society, March 7, 1888, says: Fracture of the external condyle of the humerus, extending more or less deeply into the elbow-joint is often difficult to treat in such a manner as to prevent deformity and impaired motion. Dislocation of the head of the radius forwards, causing it to impinge upon the shaft of the humerus in flexion of the forearm, is a common occurrence, and unless corrected, flexion can never be made beyond a right angle, and seldom quite to it. Another complication not infrequently met with in this injury is dislocation of the radius and ulna backwards and outwards, thereby preventing flexion beyond a very slight degree.

To prevent the forward displacement of the radius I have made use in several instances of the ordinary internal angular splint set at an acute angle. One

case, that of a child, was treated without any splint by reducing the dislocation, and placing the forearm at an acute angle and securing it in position by adhesive straps and bandages. The result was satisfactory, but I do not recommend the method for general use, as pain and other mischief might readily follow the treatment, unless great care was taken to avoid it. It is impossible for anterior displacement to take place with the arm put up at a moderately acute angle, as there is no room for the head of the radius to slip on to the anterior surface of the humerus. The angle need only be acute enough to preclude the possibility of a forward displacement of the radius.

The lateral dislocation of the radius and ulna can be controlled very satisfactorily by means of lateral angular splints, one on each side of the arm. These splints, together with the anterior, or as it is usually called, the internal angular splint, applied to an arm, afford a very complete support to the elbow-joint. The bones are held firmly in position, the joint is well supported and with the arm in a well-fitting sling the patient is usually as comfortable as can be expected.

I have never treated this class of injuries to the elbow in a straight position, and cannot see any advantages to be derived from the method. Should any anchylosis result from the injury it is far better that the forearm should be at or near a right angle, as this position enables the patient to do very much more than any other in the way of dressing, eating, etc.

The broken arm is examined every three or four days. Gentle passive motion is used after ten days, and it is varied in degree according to the indication. Care is taken not to light up a fresh inflammation by this measure, as more is lost than gained by so doing. The joint often improves in mobility for a year or more, hence a too hasty opinion should not be given in these cases.

In conclusion, I would urge upon the younger members of the Society the importance of making the first examination and dressing with the patient under ether. A more careful diagnosis can thus be made and a better position can be secured for the broken bones. Guard against an anterior dislocation of the head of the radius with the fragment of the external condyle, and also of a backward or lateral displacement of both bones of the forearm. The arm once placed at an acute angle, and properly secured in that position, it is hardly possible for either of these complications to occur.—*Boston Medical and Surgical Journal*, May 17, 1888.

New Method of Applying Taxis.

Mr. G. Jameson, Resident Surgeon of the Medical College Hospital, Calcutta, in a letter to the *British Med. Journal*, April 28, 1888, says: A few days ago a native presented himself at the dispensary of this hospital with a large right scrotal hernia, which had been down for some months. The man was placed on his back and the tumor manipulated. The coverings were fairly tense. Before attempting reduction, I casually asked the patient if the tumor ever got smaller. He replied "Yes," and proceeded to give me a demonstration in taxis which I had not previously heard of. Lifting up the tumor with his left hand, he placed his right thigh on his abdomen, then crossed it over to the left side: catching the tumor between the pubes and thigh, then applying pressure. The hernia disappeared with a gurgle and a snap before I had time to call the attention of the students to this novel procedure. The reduction was complete.

Syphilis of the Orbit.

DR. MACERK remarks, in the *Wiener Klinik*, that orbital syphilis is rare, but may be observed in the inherited as well as the acquired form of the disease. It usually begins in the roof of the orbit, being first recognized by severe pains, which are constant, but worse in the evening and at night. The lid swells, and then the eyeball may become unusually prominent. Symptoms of paralysis of the recti or oblique often appear. These symptoms all develop slowly, and are of long duration; as a rule, a clear history of syphilis, or symptoms of that disease in other parts of the patient's body, is at hand. Orbital syphilis must be promptly treated, as the eyeball may suddenly become involved, or the process, which is essentially periostitis of the bony boundaries of the orbit, may extend into the cranial cavity, attacking the meninges or the brain itself. The cure, which consists in the administration of the ordinary antisyphilitic drugs, is always slow. Dr. Macerk intends to publish a complete series of histories of cases of orbital syphilis which have come under his observation and treatment. —*British Medical Journal*, May 5, 1888.

Local Applications of Carbolic Acid in Carbuncles.

DR. JAMES MCMANUS, of Brooklyn, says: "While assistant physician at the Hospital for Incurables (Insane Asylum), Flatbush, L. I., in the winter of 1882–83, I was called by one of the nurses to see a patient in the female wards. I found her with a large carbuncle on her left thigh. The patient had probably been suffering with it for several days before my attention was drawn to it; and when examined the carbuncle had a very unhealthy appearance, and the patient was, to all appearances, very sick—so sick that I fully expected her death. I had been preparing carbolic acid solutions in the drug-room that morning, and scarcely knowing what to do—believing, as I did, that nothing I could do was of any use—I sent what I thought was a five per cent. solution of carbolic acid to be used as a wash. On visiting her again in the evening I was surprised to find my insane patient very much better in appearance, and was still more so to see that the carbuncular swelling had decreased to one-third its former size, and in place of the almost gangrenous appearance of the morning, had assumed a vastly more healthy appearance. I had given ten-minim doses of tr. ferri chlor., but as she had only taken two doses of that, I could not attribute the changed appearance to the action of the drug. On examining the wash, I found that by mistake I had given a fifty per cent. solution of carbolic acid, which the nurse had faithfully applied by wetting a cloth in it and placing it over the carbuncular swelling. I kept the fifty per cent. solution on the patient that night, but substituted a weaker one the next day. In a few days the patient was entirely well. I have always believed that that mistake of mine saved the miserable, incurably insane patient's life."—*Medical Record*, May 12, 1888.

Rare Forms of Urinary Extravasation.

DR. JAMES BELL, Surgeon to the Montreal General Hospital, in a paper read before the Medico-Chirurgical Society of Montreal, reports the following cases:

Case I.—H. R., 32 years old, was admitted to hospital on September 3,

1887, suffering with retention of urine. He was a sailor and had suffered with stricture for fifteen years, and had received treatment for it at different times in marine hospitals in all parts of the world. For years he had carried with him a No. 2 silver catheter and an ordinary wire stilette, with which he relieved himself when retention occurred. When he appeared at the hospital he stated that he had been four weeks in port and had been drinking heavily all the time, and that he had been obliged to relieve himself with a No. 2 catheter several times, but that for twenty-four hours he had not been able to pass any water, and had also failed to introduce either the catheter or the stilette, both of which he had tried. The house surgeon, after some difficulty, succeeded in passing a No. 2 catheter (English) through a stricture which was situated in the penile urethra, just in front of the scrotum, and emptied his bladder. The patient was very ill at the time, however, and had a temperature of about 105° F. On this account Dr. Bell postponed operating upon his stricture until the 6th—three days later—and then, although his condition was unchanged, he performed an internal urethrotomy and dilated the urethra to 34 (French). There was only one stricture—that at the root of the penis—and no difficulty was experienced in the operation. As the stricture was so far forward, the rectum was not examined before nor at the time of the operation, although the patient complained of uneasiness about the neck of the bladder, which was at the time attributed to the prolonged retention. On the following day (the 7th) he was somewhat better, but complained more of pain about the anus. From the perineum there was considerable tenderness on pressure over the region of the prostrate, but no swelling nor sign of infiltration. Urine passing freely. Temperature, 102° F.

On September 8, the patient complained of diarrhœa; pain and fever persisting. No further examination was made until the 12th, six days after operation, when the rectum was explored, the patient being anæsthetized for this purpose. The anus was red and swollen, and on introducing the finger the rectum was found to be surrounded by suppuration, which separated it from the bony pelvis as far as the finger could reach and also from the sphincter ani posteriorly and laterally, so that the finger could be introduced between the bowel and the sacrum and ischia. The sphincter was then cut through posteriorly so as to allow a freer escape of inflammatory products and the cavity washed out with a warm sublimated solution. The washing was continued daily, and three days later a large piece of the rectum was found lying loose and completely separated, and was easily withdrawn. This piece of gut measured four inches in length and from an inch and three-quarters to two and a half in width, and consisted of the posterior and lateral walls of the gut from close upon the prostate on the left side around to the right side, but not reaching to the prostate on the right. Much sloughy cellular tissue also came away, and from this time the patient's condition rapidly improved until October 24, when he left the hospital to join one of the outgoing vessels as an able seaman. The wound seemed to be quite healed at this time, the deficiency in the rectum being filled with cicatrical tissue. Defecation and micturition were normally performed, and the urethra admitted a No. 34 sound without difficulty.

There can be little doubt, Dr. Bell thinks, but that this patient, in passing the No. 2 catheter or stilette while drunk, must have wounded the neck of the

bladder in or about the point of the prostate and behind the triangular ligament, and that the subsequent distension of the bladder forced a few drops of urine into the peri-rectal cellular tissue, which produced the ordinary results of urinary infiltration.

Case II.—In this case extravasation occurred into the pelvis from the reopening of a wound in the bladder which had been accidentally inflicted during the performance of an ovariotomy.

Mrs. L., 42 years old, was admitted to the Montreal General Hospital on September 20, 1887, suffering with an abdominal tumor which had been growing for twelve years, but which had increased rapidly in size during the last four months. Her general health was excellent. She had never had any pain, and suffered only from the inconvenience of the rapidly enlarging growth. Menstruation was regular and normal. On examination, the abdomen was seen to be enlarged to about the size of a full-term pregnancy. The tumor had evidently grown from the left side, and was round, smooth, painless on pressure, and only very indistinctly fluctuating at its most prominent point. Per vaginam, the uterus was found to be freely movable. The diagnosis was a left parovarian tumor. The operation was performed in the usual way four days after admission, the patient being catheterized by the nurse before being brought into the operating-room. On tapping the tumor only a few ounces of fluid could be withdrawn, and it was seen to be a dermoid cyst containing the usual semi-solid sebaceous-looking material. The abdominal wound was enlarged and the tumor delivered entire. There were no adhesions except about the left broad ligament, from between the layers of which it had to be enucleated. When this process was being accomplished a broad vascular mass of adhesion was encountered, which it was thought wise to ligature in sections and cut with the scissors. This mass was to the left and partly in front of the tumor, and, unknown to the operator, contained a portion of the fundus of the bladder, which had been carried high up into the abdomen by the growth of the tumor. In this way, therefore, the bladder was wounded, an incision about an inch long having been made into its upper and posterior surface with the scissors. This was immediately sutured with catgut after Lembert's method and the tumor removed. The operation was concluded, the wound closed and a dressing applied, and the patient made uninterrupted progress until the twelfth day. For the first four days a soft rubber catheter was tied in the urethra; from this time it was removed and passed every two hours. On the twelfth day the nurse (a new one) complained that she "could not get the catheter in far enough," and that the urine withdrawn had been bloody. The patient also complained that the passage of the catheter pained her. It was then ordered to be passed every four hours, and the bladder was washed out daily with a weak solution of salicylic acid dissolved with borax. Next day a small hard mass about as large as a marble was observed at the lower end of the abdominal incision, which was painful on manipulation. This mass remained without much change, and irritability of the bladder with fetid bloody urine persisted. On the eighteenth day after operation the mass was found to have suddenly disappeared, but the patient complained of pain and tenderness over the left inguinal region and in the left loin. These symptoms, together with a marked diminution in the amount of urine withdrawn by the catheter made it clear that a general extravasa-

tion of urine had occurred into the left side of the pelvis. The patient was therefore anæsthetized and the abdomen opened through the lower inch of the original incision (over the site of the little hard mass which had first appeared). Urine flowed from this incision, and on exploring with the finger, an opening could be felt in the fundus of the bladder which would almost admit the point of the little finger, while a larger sinus led down into the left side of the pelvis. Through this last a pair of long forceps was introduced and protruded into the left side of Douglas's fossa, where an incision was made into the vagina. A large drainage-tube was then drawn from the vagina through this opening and up through the abdominal wound and a large soft catheter tied into the urethra. The whole cavity, as well as the bladder, was then thoroughly washed out with a solution of salicylic acid and borax, the wound freely dusted with iodoform, and a gauze dressing applied. The drainage was very satisfactory and the patient's condition immediately improved. The wound was irrigated and dusted with iodoform and dressed as above described daily. Four days after the incision sloughs of cellular tissue began to come away in enormous masses, and an incision into the loin was found to be necessary on account of a collection of sloughy tissue in that region. The sloughs were soon all removed, and about this time (fourteen days after incision) a dark jelly-like, fermenting substance came away from the wound in considerable quantity for a few days. It was odorless, and a careful microscopical and chemical examination failed to determine its exact nature. The bowels acted normally throughout. During the separation of the sloughs the patient suffered from severe sciatic pain and hyperæsthesia of both legs. These symptoms began on the left side, and were more severe and lasted longer on that side. By October 20, all these symptoms had disappeared, the wounds were looking healthy, the bladder wound was nearly closed, the use of iodoform, which had been of late greatly lessened, was now entirely discontinued, and the prospects of recovery were most encouraging. It is worthy of note here that until the sloughs began to separate there was no elevation of temperature whatever, and at no time was the temperature high or continuous, but from the onset of the bladder symptoms the pulse remained rapid—from 100 to 120. About November 1, an acute mania developed, and from this time, although the local conditions continued to improve, the patient had to be forcibly restrained. She refused food, and was in a state of maniacal excitement day and night, without sleep and with frequent involuntary evacuations, gradually and perceptibly sinking until November 9, when she died; at the end of the eighth week after operation. Slight delirium at night and a peevish, nervous condition of the patient, especially while being dressed, had been observed for a few days before the violent maniacal symptoms set in. These latter lasted about eight days, and were accompanied by very rapid emaciation. Unfortunately an autopsy could not be obtained.

This case, as Dr. Bell remarks, presents many points of interest, and illustrates a chapter of accidents such as it fortunately seldom falls to the lot of the surgeon to report in any individual case. (1) It emphasizes the necessity for instrumental exploration of the bladder by the surgeon before operating. It had heretofore been his practice to allow the nurse to catheterize the patient before bringing her into the operating-room. This was done with the double object of shortening the period of anæsthesia and to avoid soiling the hands after having

cleansed them for operation. Important as these matters are, however, they are not to be compared with the risk of wounding the bladder, which is occasionally carried high up into the abdomen on the surface of the tumor. (2) It strengthens the evidence already existing to show that catgut is not to be relied upon as a suture to retain the contents of a hollow viscus. He adds that from past experience he would not have used catgut, but that no suitable silk was at hand at the moment. (3) The necessity for careful and thorough catheterization for at least two weeks after an accident of this kind is here shown.

Finally, with regard to the acute maniacal condition, which was the immediate cause of death, and which supervened when to all appearances the other difficulties had been overcome, he makes two suggestions, viz., that it was due either to the toxic effects of iodoform or to the absorption of ptomaines or leucomaines from the urine retained and decomposing in the cellular tissue of the pelvis. The patient was a healthy, vigorous woman, with an excellent family history, who had never suffered from any form of nervous derangement in her life. On the other hand, the use of iodoform had been practically discontinued for several days before the maniacal symptoms appeared, and the cavity had been thoroughly irrigated every day with a solution of salicylic acid and borax.

In conclusion he mentions a third case, in which, during the performance of an ovariotomy, a strong fibrous band connecting the surface of the tumor with the base of the bladder was stripped off from the latter, tearing away its peritoneal covering over a small area. Nothing was thought of this at the time, and the patient made an excellent recovery; but two weeks after operation a small inflammatory mass appeared at the lower angle of the abdominal wound. This was thought to be a stitch-hole abscess, but on pressing it an amber-colored fluid exuded. A large soft catheter retained in the urethra for ten days not only gave immediate relief to the symptoms, but effected a complete cure.

The history of these cases shows that the necessity for early surgical interference where extravasation of urine has occured within the pelvis, no matter how slightly or how gradually occurring, is as great or greater than for extravasation into the perineal tissues. He says that had he recognized the condition sufficiently early in the second case of this series, he has no doubt but that he would have saved his patient.—*Canada Medical and Surgical Journal*, May, 1888.

Laparotomy for Diseases of the Liver.

At the meeting of the Clinical Society of Maryland, March 16, 1888, Dr. L. McLane Tiffany reported two cases of laparotomy for diseases of the liver.

Case I. Hepatic abscess. The patient was a white man, 24 years old. In October, 1884, he was taken with an attack of dysentery which reduced him very much in his general health, but in February, 1885, he had improved and was up and about. In March of the same year he went south. While there dysentery again attacked him and he returned home in April. In July he went to Deer Park and got better. He went to Newport in August and became worse, and his bowels continued irregular during that winter. In the spring of 1886 his bowels were still irregular, and his physician stated that he had congestion of the liver. During the summer of 1886 the patient had a capricious appetite, lassitude, irregular bowels, and perhaps a chill or so (but this latter is uncertain).

Amelioration in his condition did not occur during the autumn. Dr. Tiffany saw the patient January 20, 1887. Examination of all of his organs gave negative results. He was kept under observation and the changes noted during three weeks. In February a diagnosis of liver abscess was made. On March 9 he was tapped, but the contents soon reformed. An operation was then decided on and was performed March 19, 1887. The patient was etherized and an incision made over the region of the liver below the ribs; there being evidence that the abscess was situated in the superior portion of the organ it was decided to get free drainage from below. The parietal layer of the peritoneum being cut through and the liver reached, it was decided to close off all contact with the peritoneal cavity by stitching this layer firmly to the visceral layer of the liver, which was done with a glover's stitch. The incision was then carried through the liver and the abscess reached. During the incision a good deal of hemorrhage took place, but it was easily controlled by packing some lint into the wound. After it ceased, a drainage tube was inserted and the abscess cavity thoroughly drained. The wound was then united and dressed with iodoform gauze, etc. Early in April bile began to flow through the wound, and so profusely did it do so that it became necessary to withdraw the drainage tube. In the meantime the patient was given ox gall internally. All symptoms soon subsided, and he went on and made a perfect recovery.

Case II. Biliary calculi. This patient was seen in consultation with Dr. Wilkins. She was a woman 30 years old, married and the mother of several children. Previous health good. Since August 1, 1887, she has had frequent attacks of pain which presented the clinical history of biliary calculi. The paroxysms of pain would recur at intervals of one to two weeks, of variable duration and usually sudden in their onset and disappearance. Jaundice always followed the attacks of pain. The urine showed the presence of bile and the feces were clay colored. Vomiting usually followed the attacks, and throughout dyspeptic symptoms predominated. Palpation and percussion showed pain and tumefaction in the right hypochondriac region. Gall stones were found from time to time in the feces. After exhausting all of the usual means of treatment, operative aid was proposed and accepted by the patient. On the day of the operation the patient was emaciated, skin and conjunctivæ considerably icteric. Pulse 96, temperature 99.6°. In the right hypochondriac region a tumor could be felt which was painful to the touch, movable, and changing its position toward the median line when the patient was placed on the left side. The operation was performed January 17, 1888, under strict antiseptic precautions. The patient was etherized and an incision was made over the seat of the tumor. The liver was reached and the hand was introduced through the wound. Examination of the surrounding parts showed the gall bladder to be adherent to the intestines, which interfered considerably with its manipulation. Such being the condition it was decided to cut through the liver and reach the gall bladder that way. The parietal layer of peritoneum was firmly stitched to the visceral layer of the liver, as was done in the case of liver abscess, thus closing completely the peritoneal cavity. An aspirator needle was then inserted through the liver substance towards the gall bladder, and a small amount of viscid fluid was seen to come away. A knife was then introduced along the side of the

needle and the gall bladder was found and opened. Quite a gush of blood took place, which was controlled by thrusting the finger into the wound. Fifteen gall stones varying in size were removed. A drainage tube was introduced, the wound brought together and dressed with iodoform gauze. The patient soon recovered from the anæsthesia; one grain of opium was given every three hours, and from this time all went well towards recovery. On January 21 the drainage tube was removed, and on January 22 the stools showed the presence of bile. Jaundice at this time was disappearing, and by January 31 it was almost entirely gone. On February 2 the sutures were removed, and perfect union had taken place except a small fistulous opening. By February 24 the patient had gained in flesh and strength, all symptoms had subsided, and she gradually began to resume her household duties.

Cocaine in Lithotrity.

In a case in which an attempt to perform lithotrity proved futile on account of the extreme irritability of the bladder and the prostrate condition of the patient, Dr. PHELIP injected into the bladder sixteen grains of cocaine dissolved in twelve fluid ounces of water at a suitable temperature. After a few minutes, during which the patient was moved into different positions to ensure the anæsthetic coming into contact with all parts of the wall of the bladder, it was found possible to proceed. The patient felt no pain whatever, and the surgeon was enabled to do his work quietly and completely. The anæsthetic condition of the bladder lasted about twenty minutes. The experiment, having proved so successful, was repeated on five subsequent occasions with the same happy result. It was noticed, however, that the effect produced by the last two injections was less marked and did not last as long as after the others. No untoward symptoms followed at any time, but it is recommended to adapt the dose of the drug to the degree of vesical irritation, and never to use the higher strength before trying the effect of a weaker one.—*British Medical Journal*, May 5, 1888.

Nephrolithotomy.

DR. D. HAYES AGNEW, Professor of Surgery in the University of Pennsylvania, reports the following case of nephrolithotomy in the *Medical News*, February 4, 1888: Mr. S. W., thirty-eight years old, a resident of Sydney, Nova Scotia, was brought to me by Dr. McPherson of that place. Mr. W. had enjoyed perfect health until May, 1876, when he was overtaken with a severe attack of acute rheumatic fever, lasting, in a modified form, for nearly six months, and leaving him with an ankylosed knee-joint. The year following, the fall of 1877, he had a severe paroxysm of what was regarded as renal colic, and every succeeding month for five months, similar attacks were experienced, lasting seldom less than twenty-four or forty-eight hours. From this time until 1879, he enjoyed a complete immunity from pain, but after this long exemption was again seized with another paroxysm of unusual severity and duration, which confined him to his bed for an entire week. During all this time, no calculi were passed, and comparatively little vesical irritation was experienced.

From this period onward, until September, 1887, he continued in fair health, experiencing, however, at regular intervals, more or less pain in the left lumbar

region, seldom lasting over half an hour. It was now that the urine became quite turbid. In October, the pains in the left lumbar region became more severe, scarcely ever intermitting. These pains were not confined to the left lumbar region, but extended over the entire left side of the abdomen, reaching in not a few instances to the right loin, also shooting down the left thigh, and into the left testicle, accompanied with strong retraction of the gland.

About the latter part of October, the urine became thick, ropy, and offensive, and the old pains almost unendurable. This condition was again followed by a notable abatement of pain, and a marked improvement in the appearance of the urine.

At the time the patient arrived in Philadelphia, which was the last week in November, he was again beginning to suffer with the lumbar pains, attributed, and perhaps correctly, to the effects of the long journey from Sydney to this city. The urine, on examination, was found to contain a considerable quantity of pus, blood, and some renal epithelium. The diagnosis was stone in the left kidney, and the operation of nephrolithotomy recommended. To this the patient readily assented, and on December 1 the left loin was opened by the usual incision, the adipose tissue around the kidney broken up, and a stone detected by the touch in the pelvis of the organ. On opening the pelvis, a considerable quantity of offensive pus and urine escaped. The stone proved to be one of great magnitude, not only filling up the pelvis of the gland, but sending prolongations into the infundibula. After its abstraction, a second concretion was detected in the ureter, and removed, the two weighing 473 grains. A large sized drainage tube was introduced through the wound into the pelvis of the kidney. After washing out the parts thoroughly with a solution of the mercuric chloride (1 to 1000), the incision was closed by two rows of sutures, the deep ones, consisting of catgut, brought together the lumbar aponeurosis, and the superficial ones, of silkworm-gut, inclosed the integument, subcutaneous tissue, and muscles. The external dressing was composed of the ordinary antiseptic materials. A portion of the drainage tube was removed on the thirteenth day, and the remainder on the nineteeth day. On the thirteenth day, the patient was allowed to sit up in bed, and on the eighteenth day was moving about his room. From the time of the operation until he left the hospital for his home, he was literally without an untoward symptom.

Cause and Treatment of Bunion.

Dr. G. A. Krebs, of St. Louis, says: Hallux Valgus, ordinarily called bunion of the great toe, is caused by wearing boots which are too short and too narrow. The whole foot being thus subjected to pressure both from side to side and from before backwards, the toes and metatarsal bones, which are the most flexible parts of the foot, become displaced, the ungual extremity of the big toe is directed outwards and its metatarsal end backwards and inwards, while the metatarso-phalangeal articulation of the great toe, bulging on the inner surface of the foot gives rise to the formation of a bunion (over that joint). The tendon of the extensor proprius pollicis, slipping toward the median line of the foot, tends still more to drag the toe out of place. The second and third toes are usually squeezed (forced) above the great toe. This deformity occurs more fre-

quently among women than men, owing to the fact that the former are more addicted to wearing narrow, tight, ill-fitting shoes, to convey the impression of diminutive feet, than the latter. The bunion over the joint often becomes ulcerated from pressure against its surface and thus forms an additional source of intolerable, agonizing pain, rendering walking almost an impossibility.

The treatment of this painful deformity in its early stage consists in wearing properly constructed shoes, forcing the toe into its normal position and maintaining (holding) it there by means of splints which are fixed to the inner border of the foot. When the deformity is more severe, the tendon of the extensor proprius pollicis must be divided, the toe forced inwards, and a slipper, with a padded metal plate and heel piece, having slots cut between the toes and a spring attached to its inner border which is fastened to the great toe, must be worn.

Instead of a spring a piece of rubber may be used, care being taken that the rubber does not obstruct the circulation, as gangrene has occurred on several occasions where it has been employed.

Furthermore, a broad strap should be passed around the phalangeal extremity of the metatarsal bones so as to keep the fore part of the foot well spread out on the sole. The toes must be tied down and separated by means of tapes passed through the slots. After the toes have been restored to their proper form, the bunion if protected by a piece of felt, usually disappears of itself.

In obstinate cases where the above given methods have failed, the patient may be relieved by having the metatarso-phalangeal articulation excised, a very simple operation which is devoid of danger.—*International Medical and Surgical Synopsis*, May, 1888.

Immediate Suture of the Urethra in Traumatic Rupture.

Opinions are at variance regarding the treatment of the most severe cases of rupture of the urethra, and antiseptic treatment has not as yet produced the beneficial modifications which were hoped from it. In complete rupture of the perineal urethra, a rational method of treatment should, according to ERASME (*Annales des maladies genito-urinaires*, March, 1888), fulfill the following indications: 1. To open a wide passage for the fluids which have accumulated about the point of rupture. 2. To maintain free vent for the urine. 3. To bring about rapid union of the two ends of the ruptured urethra and the walls of the cavity formed by the extravasation into the perineum. 4. To prevent the formation of cicatricial contraction of the urethral canal.

Antiseptic treatment, carried out according to the rules indicated by Hueter and Löbker, by fixing an elastic catheter *à demeure*, and by antiseptic packing of the wound (Iversen), or by suture of its borders (Lucas-Championnière) in producing a more rapid union, and a less developed inflammatory new formation, diminishes a little the retractility of the peri-urethral tissues, but does not prevent the cicatrical retraction of the newly-formed portion of the urethra. We cannot hope for a complete and lasting result excepting in the immediate reunion of the two extremities of the urethra, without interposition of new-formed tissues. In complete rupture can we hope for union by first intention? This problem has been carefully studied in an experimental and clinical work by Kaufmann, of Munich. He experimented upon dogs, and found that primary union

was possible under most conditions. The borders of the mucous membrane must be carefully and exactly sutured by points of catgut, and the catheter removed, as it will prevent perfect antisepsis, catheterism being practiced only in the first days. The perineal wound is to be dressed open and covered with an antiseptic bandage.

When there is much separation of the two extremities the elasticity of the canal will undoubtedly permit of approximation and complete union. Mollière and Koenig found that union would take place after a considerable section of the canal had been removed.

The author thinks Kaufmann's proposition, to apply to man the immediate suture, is perfectly justifiable. The following case is related: A young man 38 years old fell upon a barrel, striking the perineum; he had retention, tumefaction of the scrotum, blueness of perineum, and swelling and persistent hemorrhage from the urethra. Diagnosis—Severe rupture of urethra. A median incision was made in the perineum from the margin of the scrotum almost to the anus. Beneath the superficial aponeurosis was found a cavity filled with clots and urine, and extending nearly to the symphysis pubis. The tear could not be discovered, so the urethra was incised longitudinally upon the point of a catheter to one side of the bulb, and complete division of the canal was found in a transverse direction, simulating a simple incision without much contusion. The tear was sutured with catgut, and the bulbo-cavernous muscles which had been torn across at their insertion were sutured to the transverse muscles. Iodoform dressings were applied and a permanent catheter introduced. Drainage was secured with an elastic tube, and drugs given to cause constipation. On the third day the catheter was changed, and union was apparent in the upper two-thirds of the wound. By the twelfth day the wound was nearly healed, and no urine had escaped by the perineal opening for five days. The catheter was removed and urination was freely established, and two weeks later the patient was discharged. The reunion of the canal was rapidly effected in this case, although some urine had escaped through the wound. The sutures were not applied to the mucous membrane directly, but close to it in the submucous and cavernous tissues. Kaufmann's sutures included the mucous membrane and were tied inside the canal, but the operation here carried out appears to the author to offer more probability of success. It is requisite that the points of suture in the perineum be separated so as to assure discharge of the secretions and urine which may escape through the sutured urethra. Rigorous antisepsis is necessary. Immediate suture is regarded as preferable to the late suture of Mollière, and according to Kauffmann, finding the posterior extremity of the urethra is more difficult than in recent cases. Kauffman's statistics give a mortality of 8.79 per cent. for cases treated by early perineal incision; 19.04 per cent. for cases treated by the hypogastric puncture, and 20 per cent. for those treated by the late perineal incision. It is probable that the differences would be still more marked for suture of the urethra.—*Journal of Cutaneous and Genito-Urinary Surgery*, May, 1888.

Physics of the Male Urethra.

Mr. Wagstaffe finds, *St. Thomas's Hospital Reports*, Volume XVI, that when a medium-sized *bougie à boule* is introduced into the bladder, and then care-

fully withdrawn by a fine thread attached to its end, it undergoes a rotation, "at first to the patient's left, for a certain distance and to a certain degree, generally making the index stand directly opposite its original position, passing, that is to say, through 180°, or half a circle. This position was reached when the instrument had passed about four inches from its start, and then began a reversed rotation, usually, but not invariably, until the index stood at right angles to the start. An explanation of the phenomenon is, probably, to be found in the peculiar construction of the urethra." This "is rifled somewhat after the manner of a gun-barrel, but the spiral of the urethral tube, which runs from right to left in about the upper three-fourths of its length, usually becomes reversed near its distal extremity. The object of the spiral-grooving, in the case of the gun, is to secure for the projectile a rotatory motion, and a greater precision in the direction of aim; and we may fairly assume that similar advantages of a physiological nature are gained for the outflow of the urine and semen by the arrangement of the urethral column."—*Dublin Journal of Medical Science*, May, 1888.

Cutaneous Manifestations of Syphilis.

Dr. George H. Rohe, Professor of Dermatology and Hygiene in the College of Physicians and Surgeons, Baltimore, in concluding a lecture on the Cutaneous Manifestations of Syphilis, says: The syphilides are the first manifestations of general systemic infection.

Syphilitic eruptions are either erythematous, papular, pustular, tubercular or nodular, or some mixed forms, modifications or consequences of these elementary lesions.

The syphilides follow a regular sequence in their eruption. The pustular or tubercular forms never precede the erythematous. The earlier forms are usually superficial, while those coming later involve the skin more deeply.

The average period of incubation of the primary lesion is three weeks; from the appearance of this lesion to the outbreak of the first syphilides, six to ten weeks; and the tertiary manifestations are rarely encountered until after a year from the date of infection.

During the secondary period the blood, and pathological secretions are infective. After the development of the tertiary or gummatous stage of the infectivity of the blood and tissues has disappeared.

The early syphilides are symmetrical and often profusely distributed. The later forms occur singly and show no tendency to symmetrical arrangement. The flexor surfaces are more liable to be the site of lesions.

The color of the syphilides is usually a reddish or yellowish brown, described by authors as the "raw ham" or "copper" color. This color does not disappear on pressure, being partly due to extravasation of blood pigment into the tissues.

The lesions are usually multiform, a pure example of papular, pustular or tubercular syphilide being seldom seen. Syphilides are frequently aggregated in circular or crescentic groups. This is, however, not a characteristic symptom. Subjective symptoms, as itching, burning and pain are usually absent in syphilitic eruptions.

In the negro race as met with in this country, syphilis shows a pronounced proclivity to the development of suppurative lesions and glandular enlargements. In this race the color of the eruption is of no aid in diagnosis.

In order to make an exact diagnosis of a syphilitic eruption the physician must have some knowledge of dermatology, be a good observer, and be able to group important symptoms in their proper relations and bring them into connection with the whole clinical history, objective and subjective, present and past, of the case under examination.

Excision of the Hip followed by Amputation.

At the meeting of the Philadelphia County Medical Society, April 25, 1888, DR. GEORGE MCCLELLAN reported a case of excision at the hip, followed by amputation, and said: Riocco V., the Italian, whose limb I amputated after having previously excised the hip, presents some points of unusual interest. He came to this country at the age of eighteen, and while on shipboard had a fall, to which he attributed the trouble in his hip. He worked for six years at his trade as stonecutter, and was finally admitted to the Philadelphia Hospital two years ago, with symptoms of hip-joint disease, and a right basal pneumonia. After recovering from the latter, an incision was made over the great trochanter and pus evacuated, but excision was not done owing to his generally bad condition. When I went on duty at the hospital, March, 1887, I found the patient with a temperature of 104°, and profuse suppuration. I at once excised the head of the femur below the trochanters, and scraped the acetabulum, which was carious. Instant relief followed, as is evidenced by the chart, and within three weeks of the excision I amputated the thigh. The patient made a rapid recovery, and the wound healed, with the exception of one of the lateral margins, which continued to discharge pus and sanious matter until a piece of drainage tube was removed spontaneously, one month ago. He is now fat and hearty, and, although not a beautiful specimen of humanity, is a remarkable instance of what the system can endure after long exhausting suppuration.

Sarcoma of the Nose.

At the meeting of the Chicago Medical Society, Feb. 6, 1886, DR. C. S. BACON exhibited a patient with sarcoma of the nose. He was 21 years old, of good family history; none of his relatives had had tumors of any kind. Some time in December, two years ago, he noticed a swelling in the right nostril. About a week after he first noticed a tumor in the nose he went to Dr. Gunn, at the Presbyterian Hospital, and the tumor was removed. Shortly after the tumor was removed the nose was swollen on the outside; nothing further was done, however, until the following August (1886); at that time the tumor had grown to about the size of a half walnut and caused some discomfort. He again went to Dr. Gunn at the Presbyterian Hospital and the tumor was removed by cutting through from the outside. No microscopic examination was made of either of these growths. The recurrence of the growth was gradual afterwards, and nothing further was done until the spring of 1887. About April, 1887, the patient went to Dr. Fenger at the Emergency Hospital. At that time the tumor was considerably larger than it was at the time of its last removal. The tumor was removed by Dr. Fenger four or five times. The recurrence was very rapid; in about two weeks it reached its original size. At that time there was some talk about a radical operation, removing a large part of the upper jaw, but it was not

done. After the fourth or fifth removal the patient passed from the hands of Dr. Fenger, and another surgeon, Dr. Owens, was called in. He made a diagnosis of malignant tumor and said he did not think the patient's life would be materially prolonged by an operation. Three or four weeks after the last removal of the tumor, in the latter part of July, the patient came under the care of Dr. Baxter at the Alexian Brothers' Hospital. At that time the tumor was much larger than is shown by the photographs; it covered a large part of the right side of the face, extending from above the eyebrow to below the mouth, closing the right eye and extending to the left, partially closing the left eye. It was an angry-looking mass. There had been some bleeding, which had been checked by a styptic solution. The growth had not been cleansed on account of the bleeding, and it was very foul. The patient had some fever and was in quite a serious condition on account of blood and septic infection. The tumor was removed, causing considerable bleeding; the actual cautery was applied, and also a styptic solution. One week later the growth had returned. This time the patient was chloroformed and the right common carotid artery tied, and the growth again removed. The bleeding from the tumor was considerable; it was partly on that account, but mainly on account of the hope of influencing the growth, that the artery was tied. The benefit of the ligation was apparent; the recurrence was not as rapid as before. However, there was a recurrence; it began to grow shortly after the ligation of the artery, but not as rapidly, and from that time the tumor was removed four times at intervals of three or four weeks. The growth reached perhaps the size shown in the photographs in the course of four weeks, not being nearly as rapid in recurrence as before the ligation of the carotid. The last removal was in the latter part of October, and from that time to this there has been no recurrence of the tumor. Two or three weeks after the last operation, the surface had granulated over, and for the last ten or twelve weeks there has been no change in the appearance. The last operation was like the others, with the exception that the cautery was not applied; it was simply that of gouging out the tumor; it was necessary to remove it as rapidly as possible on account of the bleeding. In the course of the operation a part of the septum was removed, almost all of the middle turbinated bone and a part of the superior turbinated bone. Dr. Bacon regretted that he could not present a section of the tumor, but none was saved because the diagnosis seemed plain enough, and it was hardly expected the patient would recover. It was certainly an unpromising case. The diagnosis of sarcoma was the same as made at the Emergency Hospital.

The case seemed worthy of presenting on account of the fact that it has now gone about four months without any recurrence.

On Angio-Sarcoma of the Breast.

SCHMIDT (*Langenbeck's Archiv*, vol. xxxvi, 1887, p. 421) says that angio-sarcomata are not of frequent occurrence. From the older literature Kolaczek collected thirty-two cases, and added twenty-eight to them. Those collected from modern sources amount to about twenty more. The seat of election of the angio-sarcomata is the upper jaw. Among Kolaczek's sixty cases, only fourteen were situated in other parts—namely, stomach, omentum, peritoneum, bladder, in the glands and the integuments of the trunk and extremities. Schmidt adds

some others from the Heidelberg hospital: three in the testicle, one retroperitoneal, two in the kidney, one in the rectum, and eight in the mamma; also three additional mammary angio-sarcomas. The age of the patients was from fifty upwards, the oldest being seventy-five. Seven of them were married; of these, six had had children, and five had suckled their babies. In two mastitis had preceded the disease; two attributed the disease to a blow received some time previously. The time of growth of the tumors was rather long; in one it amounted to three years; in another to a year and a half; in a third from six to twelve months; while in two it was as short as two months. In one case the tumor appeared simultaneously with the commencement of the climacteric period. Pain was never complained of during the growth of the tumor. The clinical appearance was generally as follows. The women were of good constitutions; they looked healthy, and none of them showed any sign of cachexia. One suffered at the same time with phthisis. The disease was situated seven times in the right breast, and four times in the left one. In size the tumors varied, some being as large as a child's head; several nodules could generally be felt, some of which were hard, others elastic and almost fluctuating. The surrounding parts did not participate to any considerable extent. All the tumors were movable on the underlying tissues, and some of them were clearly distinguishable from the surrounding breast tissue. They were, however, in all cases intimately united to the superjacent skin; the latter was generally discolored, and in one case ulcerated. The tumors generally were flatly spherical, and the retraction and shrinking so characteristic of carcinomata was always absent. The nipple was always prominent, and never retracted and fixed. The axillary glands were generally not implicated. Recurrence set in rapidly after removal, generally in the cicatrix and in the internal organs. Metastases occurred in the lungs, spleen and omentum. On section, the tumors were reddish or reddish-yellow, generally encapsuled. In some cases an alveolar structure could be distinguished, the septa being well marked. The consistence was variable, and apparently dependent on the resistance of the surrounding tissues. Microscopically, the cell elements were arranged in a reticulated or alveolar structure. The cells were mostly round, with distinct nuclei and nucleoli. The trabecular tissue was made up of fine capillary strands; the terminations penetrated among the cells. By gradual retraction and obliteration of the bloodvessels, the tumor ceases to be sarcomatous and degenerates. The degeneration is either hyaline or myxomatous. Formation of cysts or abnormal pigmentation was not observed. The following points served to distinguish angio-sarcomata of the mamma from cancer: long existence (up to three years), slow painless growth, good constitution and healthy appearance of patient, with absence of cachexia. Angio-sarcomata are generally situated peripherally, and attain a larger size than the carcinomata. Retraction with shrinking and fixation of the nipple are absent in the former, and the axillary glands are only rarely enlarged. Another point is the tendency to rapid recurrence in the angio-sarcomata. A further aid to diagnosis is the estimation of hæmoglobin in the blood. In cancer the percentage is very low, sometimes down to half the normal quantity; in sarcomata it is scarcely diminished. Prognosis is unfavorable in the angio-sarcomata, owing to the tendency to early metastasis. The treatment consists in early removal, and the skin should

be freely sacrificed. After the operation the patient must be kept under strict watch so that any recurrence may be at once removed.—*Medical Chronicle*, May, 1888.

Amputation of Left Half of the Tongue for Epithelioma.

At the meeting of the Philadelphia County Medical Society, April 25, 1888, Dr. George McClellan reported a case of amputation of the left half of the tongue for epithelioma, and said: The patient, Michael G., an Irishman, forty years old, was admitted the first of this month to my ward at the Philadelphia Hospital. He stated that he had never had syphilis, and that his general health had always been good, which was borne out by his appearance. He had always been an intemperate smoker of a short-stemmed pipe. Six months ago he first experienced sharp and shooting pain extending from the root of the tongue on the left side down the neck and over the face. A small sore was noticed on the side of the tongue about its middle, which rapidly increased until, at the time of admission to the hospital, it was the size of a half dollar. Articulation and deglutition were interfered with, and there was a constant flow of saliva. There was also apparently an enlarged gland in the submaxillary triangle. I diagnosticated the disease to be epithelioma, and undertook its removal by amputation on April 11, just two weeks ago. An incision was made from the symphysis of the chin, a finger's breadth below the jaw as far as the external jugular vein; the deep cervical fascia was torn through with the fingers and knife handle, and the swelling, which was under the sterno-mastoid muscle, proved to be a degenerated gland, or rather cyst, which was filled with thick, cheesy matter. The cyst was evacuated of its contents, the cyst wall torn out as much as possible, and the lingual artery, which was exposed in its relation to the hyoid bone, the hypoglossal nerve and digastric muscle, was secured by a ligature. The anterior belly of the digastric was severed, and the mylo-hyoid muscle with the oral mucous membrane punched through with the finger, and the tongue having been freed from its frænum and pierced at its apex with a strong needle and string, was pulled down into the wound in the neck, as I hoped by so doing to be able to take away the diseased portion by the first incision. This proved unadvisable, owing to the short, thick neck of the patient, and would have endangered the carotid and deep vein, and I at once cut through the commissure of the mouth, and, after tying the coronary arteries, pulled the tongue forward, passed a trocar and canula through the middle of its base close to the hyoid bone, the trocar was withdrawn and the chain of an écraseur was passed through the canula and, after withdrawing the latter, I found the écraseur worked admirably. I then cut off the affected half of the tongue close to the raphé, and was able to show my assistants that the only bleeding vessels from the tongue itself were at its apex. A ligature secured these, and the stump was lightly touched with the Paquelin cautery. Both wounds were then united by interrupted silk sutures, and dressed antiseptically. There was a rise of temperature to 103° the evening following, which was reduced by quinine suppositories and sponging. Since then it has been about normal. There was a great deal of venous bleeding during the operation, but very little arterial, owing to the early and prompt securing of the lingual and branches of the facial. Only cracked ice and iced milk were allowed

the patient for the first twenty-four hours. The wounds were found healed at the first dressing on the third day, and this morning (April 25) I saw the patient sitting up in a chair dressed and wishing to go out. He has had no pain whatever, and talks perfectly, and takes nourishment better than for a long time before the operation.

In answer to a question by Dr. G. G. Davis, as to the way in which Dr. McClellan tied the lingual artery, the latter said: The lingual artery is not difficult to secure. The landmark is the great cornu of the hyoid bone, and by making a curved incision parallel to the angle of the lower jaw, over it, we can readily expose the looped tendon of the digastric muscle and the stylo-hyoideus. Here the hypo-glossal nerve is found, and the lingual artery passes immediately behind it.

It will be remembered that there was a great mass in the neck, probably due to secondary involvement from the growth on the tongue. The first incision was made with the view of removing the gland and bringing out the tongue laterally by the same means of access. The gland was found beneath the sterno-mastoid muscle, and a dissection to expose it would have endangered not alone the carotid artery, but the deep jugular vein, which I am loath either to wound or to tie. I therefore tore out the cyst after discharging its contents, and then brought into view the parts over the lingual.

In looking over the history of excision of the tongue, I have been struck with the fact that the different methods adopted all have points worthy of consideration in different cases. The operation of cutting through the symphysis is sometimes practised, also the horseshoe sub-mental incision. The lateral operation is applicable only in a long, thin neck. It could not be performed in a short, thick neck. The other operation, of simply cutting through the oral commissure, is very easy and simple, and exposes the parts sufficiently in all cases in which the disease is situated behind the middle of the organ. If we simply remember that the deep cervical fascia which loops down the two bellies of the digastric muscle also covers the artery and nerve, we need have no difficulty in finding the lingual, and it is readily distinguished from the nerve which lies in front of it, both upon the cadaver and living patient. The difficulties sometimes experienced in operating on the former are due to the relation of the parts not being properly remembered.

Case of Spontaneous Gangrene of the Penis.

Dr. Troisfontaines reports a case of this affection in the *Annales de la Société Médico-Chirurgicale de Liège*, March, 1888. The subject, a young man, was healthy, of good family history and living under satisfactory hygienic conditions. June 6, 1887, without any apparent cause, he became aware of a pricking sensation in a limited space, on the dorsal aspect of the penis, close to the glans. There was no alteration in the appearance of the structures. The pricking sensation increased to lancinating pain, and the prepuce became œdematous as far as the seat of pain. The following day the pain and swelling had greatly increased and by the 10th there was considerable sanious discharge of a very fetid character from the preputial orifice. The physician who saw him believed that he was suffering with a malignant balanitis and prescribed appropriate treatment. Dr. Trois-

fontaines on seeing the case recognized the gangrenous odor of the discharge. The penis, for its anterior two-thirds, had become enormously enlarged, measuring over 19 cm. (about 7 inches) in circumference. The pain was very great, the inguinal glands were involved and his general condition was bad. At the point where the pain had first appeared, was a bluish white area, cold and insensitive; the anterior portion of the prepuce was discolored on its dorsal aspect. He immediately divided the prepuce as far as the gangrenous spot and subsequently prolonged the incision almost to the root of the organ. It was then apparent that the gangrene involved the fascia and cellular tissue extensively, and that the destructive process had excavated the corpus cavernosum in which several blood clots were found. The gangrenous tissues were removed with the scissors, the wound irrigated with a disinfectant solution, and a dressing of charpi and iodoform applied. The local and general condition at once improved and there was no further extension of the disease. When the parts had healed there was a depressed transverse cicatrix, fixing the prepuce to the penis at the coronal furrow, causing the organ to curve slightly upwards, but not interfering with erection or copulation. Dr. Troisfontaines offers no explanation of the etiology of the disease, but believes that these cases deserve a special classification.—*Sacramento Medical Times*, May, 1888.

Intra-pleural Injections of Sterilised Air for Pleuritic Effusion following Pneumothorax.

At the last sitting of the Academy of Medicine of Paris, M. POTAIN spoke at length on the above subject. A man in the third stage of phthisis entered the hospital ten months ago with a pneumothorax, and to-day he is completely cured of the latter affection, and the tuberculous affection seems to have been greatly ameliorated. The man was twenty-three years old, and the fever, which ran high at the beginning, fell completely at the end of a fortnight. The effusion was very considerable, reaching as high as the subspinous fossa of the scapula. Thoracentesis was clearly indicated, were it not for certain reasons which might have rendered the liquid, which up to the present was limpid, purulent, and consequently endanger the life of the patient, who was already in a very critical condition. By removing the fluid, the lung, which had been compressed, would, on regaining its volume, give free access to the process of tuberculisation and the result would be fatal to the patient in a very short time. It was for these reasons that M. Potain adopted the method which he explained to his colleagues. He drew off the entire quantity of the liquid, but he took care to replace it with air as he proceeded in order to avoid the dilatation of the lung. Ten years ago such a treatment would have been considered as very rash, but it is now well known that air is only dangerous in proportion to the germs it contains, and that when deprived or purified of those germs it becomes completely innocuous. M. Potain performed thoracentesis in the usual manner, and introduced the air through cotton and a bottle of a strong solution of carbolic acid, which rendered it effectually sterile. The effusion returned at the end of six weeks, when the operation was renewed, the canula used being double to allow simultaneously the exit of the liquid and the entry of the sterilized air. Four times the operation was performed, and M. Potain, thinking that it was time, drew off the air

and the rest of the liquid, but immediately the patient was seized with pain and suffocation, and the air had to be renewed. However, in a few weeks all trace of effusion had disappeared, the lung expanded, and the man became rapidly convalescent. Two other patients were treated in a similar manner, one of whom got well, while the other was greatly benefited.—*Medical Press and Circular*, May 9, 1888.

Œsophagotomy.

In the *Dublin Journal of Medical Science*, April, 1888, J. S. McArdle reports a successful case of œsophagotomy for removal of a foreign body. The patient was a woman 48 years old, who was admitted to St. Vincent's Hospital, December 6, 1887. For ten years she had been living upon liquid diet on account of having lost her teeth. The result was a condition of general debility and anæmia, which became very marked during the two years preceding her admission. Early in November, 1887, while attempting to swallow some roast beef, the first piece only reached the cricoid cartilage, when it occasioned her great uneasiness, and prevented the swallowing even of fluids. She felt as if the piece had become fixed in the right side of her neck. She came at once under the care of two of the best surgeons in the south of Ireland. They attempted removal by the usual appliances, but the only change brought about by their efforts was a transference of the body from the right to the left, and downwards into the root of the neck. Seeing that all attempts at removal failed, she came to Dublin.

On admission, she was pale and emaciated, and had a haggard and anxious expression; pulse, 88, very weak and compressible; temperature, 98°; nervous, respiratory, and urinary systems normal; tongue coated with dry, yellow fur; slight inclination to vomit; breath very fetid; diarrhœa. She could swallow liquids in small quantity, but every act of deglutition caused pain in the left side of neck at sternal end of right clavicle, and extending downwards behind the first piece of the sternum. The most painful spot corresponded to the interspace between the heads of the sterno-mastoid. At this point pressure caused a cutting pain, and on pressing deeply down behind the clavicle a rounded mass the size of a small egg could be felt extending outwards to the middle of the sterno-mastoid, and inwards to middle line, in part obliterating the supra-sternal notch. This swelling was very firm, feeling like cartilage, and from its upper rounded border the left carotid passed vertically upwards, greatly enlarged, firm, and cord-like. It was at least one and a half times the size of the right carotid. This condition of the vessel was well marked and reached to within half an inch of its bifurcation. There was no murmur over it.

The pain in the neck increased, and fearing the occurrence of erosion of the carotid he determined to examine the patient under ether. This he did December 10, four days after her admission. With a pliable silver sound he was able to detect a firm body fixed in the left side of the œsophagus at the level of the sternum, and fearing from its position that any attempt at removal by the mouth might place it beyond his reach or bring on serious, if not fatal hemorrhage, he decided on performing external œsophagotomy, which was conducted as follows:—

Without letting the patient up from under the influence of ether, the shoulders being raised and supported by a firm pillow, her head drawn backwards and

to the right side, he made an incision four inches in length along the inner edge of the sterno-mastod extending one inch downwards over the sternum; this allowed free access to the supra-sternal notch, which was partly filled by the swelling. The superficial fascia and platysma were now cut through and the anterior jugular, after double ligature, severed. On cutting the deep fascia passing inwards from the sterno-mastoid, and drawing that muscle outwards with hooked retractors, he found that the vessels could not be drawn with it, as after scratching through the fascia surrounding the thyroid lobe, and raising that body towards the middle line, he found the sheath of the vessels firmly fixed to the œsophagus. The artery was greatly thickened, and firm fibrinous exudation surrounded the vessel for two inches of its length, nearly half of this being below the upper border of the sternum. On passing the finger under the sternal muscles a hard body could be felt in the centre of the exudation at the supra-sternal notch; at this point the union between the gullet and vessels was very firm. Seeing that here the foreign body (after perforating the œsophagus) was making its way into the carotid, and fearing that already that body was partly eroded, he determined on being prepared for any yielding of the vessel which might occur on extracting the body. For this purpose he cut through the sterno-mastoid, hyoid, and thyroid. Reflecting the ends, he obtained a good view of the parts, and passing his left index finger along the carotid, he found that the induration above alluded to extended an inch below the upper end of the sternum. Beyond the level of this thickening he scratched through the fascia in front of the carotid with a director and passed an aneurism needle (threaded with strong carbolized silk) round that vessel; this provisional ligature was drawn through the external wound. He then passed a similar ligature above the point of adhesion, and all danger of hemorrhage from the carotid being thus provided against, he passed a curved silver sound into the œsophagus, and cutting on it, made an opening capable of admitting his index finger, on introducing which, he discovered a piece of bone projecting slightly into the lumen of the tube and fixed in its left wall. Passing a curved polypus forceps along his finger, he extracted this, and on making a further examination discovered another piece slightly fixed in the left side of the œsophagus, but lying almost lengthwise. This he removed in the same way, and on examining the œsophageal wall he found that it had been completely perforated by these bodies behind the first piece of the sternum. He now cleansed the wound with a 1 in 80 solution of carbolic acid, passed in a large drainage-tube into its lower angle, plugged with iodoform gauze, and dressed the neck with carbolic gauze.

In concluding his paper he says: "My objects in bringing forward this case were—first, to demonstrate the precautionary measures necessary when perforation of the gullet has occurred, and the important vessels are implicated; second, to call attention to the fact that small pieces of iced (*sic*) foods could be swallowed readily, while liquids gave trouble, passing in great part through the wound into the dressings.

There can be no doubt of the frequency with which death is brought about by hemorrhage after the withdrawal of spiculated foreign bodies from the œsophagus. To avoid all danger of this kind in my case, I laid a provisional ligature on the carotid below, and another above the point at which I found the body.

Now, although this procedure lengthened the operation somewhat, I was well repaid the trouble, and recompensed for the delay by the feeling of perfect security with which I carried out the final steps of the operation, knowing that in the event of this foreign body having penetrated the carotid, that vessel was completely under my control. If, in the absence of the provisional ligatures, the removal of the body should be followed by hemorrhage, ligature of the vessel would be extremely troublesome, if not impossible, in the presence of blood pouring into the œsophagus, and welling up into the wound. It is only when one has had experience of cases of hemorrhage from the vessels as they leave the thorax that the great difficulty of dealing with it in a case of this kind becomes apparent. I would, therefore, advise this laying on of provisional ligatures when any perforation of the gullet exists. The question of nourishing the patient after œsophagotomy is of great importance, since most of the fatal cases exhibited marked evidences of inanition. The methods of feeding after this operation are (*a*) by enemata, which rarely afford nourishment enough; (*b*) tube passed through mouth; (*c*) tube through nose; (*d*) tube through œsophageal wound.

Enemata are capable of supporting a patient—1st, when for some time before he solely depends on them, the rectum has become accustomed to their introduction; 2d, when the condition immediately preceding operation is one of sound health; and 3d, when the required repair is of a trivial nature. Now, these conditions are seldom present in cases of œsophagotomy, and hence we cannot often depend on enemata for more than forty-eight hours, however carefully prepared. The use of the tube through the mouth renders the patient very uncomfortable, and is frequently attended with a feeling of pharyngeal and laryngeal distress, which forbids its frequent introduction. When passed through the nose, a soft rubber tube can be used with comparative ease, and after the first twenty-four hours it rarely causes any uneasiness. When, owing to an irritable condition of the nares, or other cause, the tube cannot be used, it may be passed through the wound in the gullet; this, of course, delays the healing, but is often a necessary means of supporting the patient's strength. The method which I adopted of giving small and frequently-repeated amounts of iced chicken essence, when liquids passed through the wound, served admirably in the case above noted; and although I do not expect the same treatment to be applicable to every case, I believe the procedure worthy of consideration. There is no doubt in my mind that rectal nourishment would not have been sufficient to support my patient during the healing of a deep-seated and extensive wound such as was here present.

There is another point in the after-treatment of this case I would call attention to—it is the careful plugging of the cervical wound. Every little inequality in the deeper parts of the incision was accurately filled with iodoform gauze, so that serum, mucus, or pus could not accumulate at any spot—the absorbent material rapidly taking up every fluid coming in contact with it from the œsophagus, or the wound surfaces. The dressings here cannot be allowed to remain *in situ* longer than twenty-four hours in the beginning of these cases, since, 1st, there is danger of infection from the œsophagus, the wound in which is rarely closed before the eighth day; 2d, if pus, serum, or mucus is allowed to

collect, it tends to pass downwards into the posterior mediastinum, setting up local inflammatory troubles, or giving rise to septic complications. The question of suturing the œsophageal wound is still *sub judice;* there can be no doubt of the advisability of this procedure, when the foreign body is removed before it has caused ulceration or suppuration, and, as pointed out by Dr. G. Fisher (*Deut. Zeit. für Chir.*, 1887, Heft 6) this is usually the case when the operation is performed within the forty-eight hours succeeding the introduction of the body. The conditions which contra-indicate suture are—1. Erosions of mucous membrane of gullet; 2. Abscess surrounding the foreign body; 3. Severe inflammation of the perivertebral connective tissue and the walls of the gullet; 4. Perforation of gullet by the body. The passage of a strong silk thread through each lip of the œsophageal wound is useful; these threads are left long, and in case of hemorrhage from any ulcerated spots on the œsophagus, or in the event of intubation through the wound being necessary, they serve as guides to the opening in the gullet, which in their absence is very difficult of recognition. Several cases are recorded in which attempts at introducing a tube led to the production of mediastinal abscess and pyæmia; the tube, missing the gullet wound, passed downwards into the thorax, thus leaving a channel which it was found impossible to drain. All the cases in which this occurred ended fatally.

For some weeks after operation in the above case there was almost complete aphonia. This, as I explained it, was not due to section of the left laryngeal, but to engagement of that nerve in the indurated material surrounding the foreign bodies. A small blister applied above the sternal end of clavicle cured the aphonia and relieved some deep-seated pain which was felt extending from that point down the left arm and upwards along the neck.

The patient is now perfectly well; aphonia is quite gone. She swallows without the slightest difficulty; the wound in the neck is firmly healed."

Ophthalmology in Europe. Notes of Visits to Celebrated Clinics.

Dr. William B. Meany, of Chicago, in a communication to the *Lancet*, April 28, 1888, says: Having recently visited the clinics (diseases of the eye) of Drs. Landolt, Abadie, De Wecker, Panas, Meyer and Galezowski, I beg to submit for perusal some of the methods adopted by these distinguished oculists.

From five to twenty-five operations are performed daily at these clinics, full antisepsis being practised. At the Hôtel Dieu, Dr. Panas operated upon six patients for the removal of cataractous lens, successfully accomplishing his work in one hour. The patients to be operated upon are put under antiseptic treatment—*i.e.*, a jet of a sublimate solution is directed on to the globe of the eye, the conjunctivæ being carefully cleansed, and special attention being paid to the eyelashes. The instruments to be used are held over the flame of a spirit-lamp before being returned to their bath of carbolized water. In cataract extractions the "small flap" is generally adopted, the operators using a thin and narrow-bladed knife—De Wecker's cataract-knife—in the performance. The advantage claimed for this knife is that any sudden escape of aqueous humor is reduced to a minimum. Usually the section takes about one-third of the whole circumference; the wound, of course, is shaped according to the size of the

cataract. The lens is usually removed from its capsule through an undilated pupil. There are cases of extraction where iridectomy is combined—*i.e.*, (*a*) if, on account of glaucomatous tension, the iris cannot be reduced in spite of all efforts; (*b*) if the patient is nervous and restless during the operation, and likely to continue so after it; and (*c*) if, on account of non-maturity, the cortical masses cannot all be evacuated. Great care is taken in the removal of lens, debris, etc.; prolonged manipulations, however, in the accomplishment of this purpose are looked upon as hurtful and dangerous, as a bubble of air or cataractous matter is absorbed, and rarely in their cases gives rise to inflammatory trouble. Eserine, pilocarpine, or atropine is instilled immediately after operation. A little *rondelle* forms the first pad of the dressing, previously bathed in either a sublimate solution or a solution of boric acid and salicylic acid, and followed by the well-known antiseptic dressings. It is claimed that by observing careful antisepsis suppuration is avoided, and some of the surgeons further state that they do not now hesitate to operate upon patients suffering with diabetes or Bright's disease, which in their experience prove no contra-indication.

Should a prolapse of the iris occur, and not readily disappear after slight friction, further manipulations through the closed lids, or by means of the curette upon the globe direct, are practised. I noticed in several instances a replacement of prolapsed iris by an ingeniously devised instrument, which I will endeavor to describe. Imagine a hollow glass cone, the base being formed by an elastic membrane and the apex being fitted with a curved canula, very thin and flattened at its free end. The whole instrument has a diameter (base to apex) of about an inch, and the small canula attached to it is of the thickness of an average hypodermic needle. A little pressure on the elastic membrane having forced out the greater part of the air, the end of the canula being placed in a weak antiseptic solution (usually $HgCl_2$), an interruption of that pressure causes the liquid to enter. It was observed that, in a case of partial prolapse of the iris, a little jet or stream of the solution readily replaces the iris, thus avoiding all injury from direct instrumental interference.

Glaucoma is combated with iridectomy, sclerotomy, cicatricotomy, equatorial puncture, and galvano-cauterization. The first three well-known operations need not be described. I have heard it stated that, in case of great tension, it is considered dangerous for the safety of the eye to open the anterior chamber. In performing equatorial puncture, cocaine in sufficient quantity is instilled to produce local anæsthesia; a fixation forceps is used to rotate the globe of the eye upwards, so that at the inferior part the equator bulbæ presents. A narrow knife is then quickly plunged through the tunics of the eye in such a way that its point is directed against the geometrical centre of the vitreous. The knife is then quickly withdrawn and the eye bandaged. It was observed that no escape of vitreous occurred following the puncture. By this procedure it is thought that a filtrating cicatrix is formed, permitting of a certain amount of drainage, which relieves tension. The galvano-cautery is employed for the purpose of obtaining results similar to those of puncture, and is carried out in the following manner. The eye is rotated so as to expose the tissues of the sclerotic coat; the two points of the cautery are made to touch successively that tunic in from three to six places, according to the effect desired, and then a bandage completes the

operation. Eserine is greatly relied upon for relieving tension; pilocarpine is substituted when eserine appears to cause irritation.

Stretching of the optic nerve is, I believe, alone practised by De Wecker, whose performance of which I had the pleasure of witnessing in a patient with marked ataxic symptoms, suffering with gray degeneration of the optic nerve. There was no pupillary response; field of vision limited concentrically; papillæ simply atrophic; chromatic reflections. The vision of the left eye was lost. Stretching of the optic nerve was practised in the left or lost eye. The eye (left) was rotated towards the temporal side; a conjunctival incision was made near the insertion of the internal rectus, the tendon of the muscle divided, and the capsule opened and freely loosened. The instrument for stretching—resembling a diminutive obstetrical forceps—was introduced so that the little blade or hook at its extremity encircled the optic nerve; then the other blade or branch was also introduced; when the two were closed, the optic nerve rested in the concavities of the two blades. A slight lifting of the eyeball concluded the operation, the blades being then withdrawn. It was observed that the operation left no other appearance than that usually met with in an ordinary tenotomy, except that the pupil remained dilated. The operation was performed under antisepsis and cocaine.

Corneal ulcers, when deeply seated, are treated by the Saemisch method, by passing a narrow bistoury into the anterior chamber in front of the ulcer and making the counter puncture beyond the zone of infection. A slight movement splits the base of the ulcer. This operation is of course confined to small ulcers. This operation is said (*a*) to diminish tension, (*b*) to cleanse the anterior chamber of inflammatory products, and (*c*) to destroy the cause of the affection. Great care is apparently taken in cleansing the lachrymal apparatus with antiseptic washes, attention being especially paid to the lachrymal sac, as the infection is thought to frequently proceed from the sac by the absorption of inflammatory products. The galvano-cautery is applied to the elevated whitish or yellowish band of infiltrated corneal tissue—the zone of infection—until it has been thoroughly destroyed. After each cauterization the base of the ulcer is filled up with iodol or iodoform, and eserine, pilocarpine, homatropine, or atropine instilled; a bandage under slight pressure is then put on. It is stated that, if the application of the galvano-cautery is thoroughly and properly done, the patient is at once relieved from the pain usually met with in cases of ulceration of the cornea.

Detachment of the retina is treated with pilocarpine, tonics, etc., as well as by surgical interference. I witnessed the introduction of a silver seton, which was passed through the cystic formation behind the detached retina. I am informed that the seton in some cases works wonderfully well. Galvano-cauterization and the equatorial puncture are executed in the manner as described in the treatment of glaucoma. Hypodermic injections of strychnine, protection from light by the aid of colored glasses, and the interdiction of all fatiguing ocular exercise, go to make up the treatment generally practised.

Pterygium removal is brought about by means of a pair of straight scissors, circumscribing the triangle directed towards the caruncle. The conjunctiva is dissected in the vicinity, so as to allow the approximation of its two borders bounding the wound, using two sutures; the pterygium is then pushed against the inner canthus. Should œdematous swelling ensue after a few days sufficient

to prevent the proper closure of the eyelids, the head of the pterygium is simply cut off. Attention was attracted to the enucleation of an eye by the aid of a pair of scissors and forceps alone.

Subcranial Hemorrhage; Secondary Trephining.

W. THORNLEY STOKER, surgeon to the Richmond Hospital, Dublin, reports the following case in the *Annals of Surgery*, June, 1888: On Thursday, June 16, 1887, a laborer named Patrick Rourke, 50 years old, of robust habit and sanguine temperament, was received into the Richmond Hospital. He was reported to have been drinking heavily up to the Sunday previous to his admission, and on that day to have fallen off a cart and sustained such injury that he became insensible. No accurate history of his condition between the Sunday and Thursday could be obtained, or no hint as to whether his fall was the result of previous loss of consciousness, or his loss of consciousness incident upon his fall. The possibility of violence having been used was present, and was supported by the apparent disinclination of those who had been in contact with him to give information. The most we could gather of his condition during the interval between his injury and his admission to hospital was that he had been more or less stupid, and apparently suffering from the effects of his previous debauch. This absence of any reliable history complicated the difficulties of the case, and was one of the reasons why operation was delayed so long.

At the time he came under observation, on the fourth day after the accident, his condition was as follows: he was in a state of stupor, from which he could easily be aroused, when he made slow but sufficiently intelligent answers. His pupils were of average size, symmetrical, and fairly responsive. He had very slight partial paralysis of his left facial nerve, with the usual protrusion of the tongue to that side; there was partial motor paralysis of the left arm, and a barely detectible motor insufficiency of the left lower extremity. He swallowed well, and his speech, though thick, was quite intelligible. There was no sensory paralysis. On his head being shaved and examined, a bruise was found on the right side of the cranium, $\frac{3}{8}$ inch from the mesial line, on that part of the scalp which would correspond to the upper part of the fissure of Rolando. It was about $\frac{5}{16}$ inch in diameter and indurated round the edge, so that it was not possible to say whether a depressed fracture existed, or merely a ring of hardened blood-clot. In consultation it was determined to delay operative treatment pending the persistence or farther development of symptoms, as there was not sufficient evidence as to whether the cerebral pressure present might not be apoplectic.

On the next day there was but little change, except that stupor was more marked; but on that following, the sixth after the fall, there was considerable change for the worse. He could with great difficulty be aroused. The breathing was stertorous. The right pupil was slightly larger than the left. The paralysis of the left arm was nearly complete, while that of the lower extremity, though incomplete, was more evident than at first.

On the next day, June 19, the seventh of the case, his condition was rather improved; but on the night of the eighth day he grew rapidly worse, and when I visited him on the morning of the ninth day after the accident his state was as follows: the face and extremities of the left side and the bladder were com-

pletely paralyzed. The pupils were symmetrical, and, without being actually dilated, were rather over medium size. He was in a state of profound coma, and the automatic act of swallowing was performed in the case of small quantities of fluid with marked slowness and imperfection. The breathing was slow, 12 to 14 in the minute, and was stertorous and diaphragmatic. The temperature, which had previously been at or about the normal point, except on the sixth day, when it went up to 100°, had fallen to 98°; and the pulse, which had for some days been gradually increasing in frequency, had risen to 110. The man was evidently failing rapidly, and would die soon if unrelieved. Looking at the entire view of the case, in spite of its obscure history, I came to the conclusion that the symptoms were probably due to hemorrhage between the bones and dura mater, dependent on a laceration, with or without fracture, of the middle meningeal artery. Although there had been, so far as we could ascertain, no complete recovery between the injury and the advent of the later symptoms of pressure, and therefore an absence of that interval which is so characteristic of subcranial hemorrhage, yet, on the other hand, there had not been that even level of ills, or that uniformly downward path of symptoms, indicative of laceration or apoplectic pressure on the brain. The reading of the case, as expressed at the time, and fully borne out by its subsequent history, was this:

1. Hemorrhage over the right motor area, between the bone and dura mater, probably due to laceration of the middle meningeal artery or one of its branches, most likely associated with fracture, and producing the partial left paralysis which at first existed.

2. Subsequent increase of the hemiplegia, either due to renewed hemorrhage, or to that sudden yielding of brain function which is repeatedly seen both in hemorrhages or serous effusions which have existed for some time, even though no additional mechanical pressure is called into play.

Let us examine the reasons for these conclusions.

The existence of the scalp injury over the upper and back part of the motor area was of less value in indicating the seat of pressure than the opposite paralyses, which pointed clearly to the engagement of the greater portion of the right motor area, including the extensive surface occupied by the cortical centres for the various parts of the upper extremity, the face and tongue, and lower extremity, the interference with them being in the sequence in which I have written them. Remember, in this context, the statement of MM. Charcot and Pitres (*Revue de Médecine*, October, 1883), more lately repeated and endored by Ferrier, that "there does not exist a single accurate observation of a destructive lesion outside the motor area having produced permanent paralysis; nor does there exist a single accurate observation of a destructive lesion of any extent of the ascending convolutions which has not given rise to permanent paralysis of the opposite side of the body."

The dilatation of the pupil on the same side of the cerebral lesion is the condition most usually found, and the disappearance of the mydriasis when the other pressure symptoms became aggravated is but an example of that compensation derived from the centres of the opposite hemisphere, as shown by the law of Broadbent, which teaches that "one-sided movements are represented in both hemispheres, and can be excited from either, in proportion as they are habitually

associated on the two sides" (Gowers). The eyes have an intimate association of action which would cause this rule to apply to them more strongly than to other parts.

As to my assumption that the pressure was cortical, and not apoplectic, it was founded on my belief in the absence of any sensory paralysis, and the teaching on that point, so well expressed by Ferrier, who says that "Strictly cortical lesions of the motor area do not cause anesthesia in any form, and it may be laid down as a rule, to which there are no exceptions, that if anesthesia is found along with motor paralysis, the lesion is not limited to the motor zone, but implicates also, organically or functionally, the sensory tracts of the internal capsule or the centres to which they are distributed." The cortical nature of the pressure was farther supported by the existence in the early stage of the case of a pronounced brachial monoplegia, as it is well established that monoplegia is a condition due to interference with the cortex and not usually found in more deeply situated lesions.

The impeded functions of the respiratory centre and pneumogastric nerve, as evidenced by the increasing rapidity of pulse, the diminishing frequency of respiration, and the extreme difficulty of swallowing, were believed to be due to pressure on the medulla from above, rather than to any direct blood-pressure on the origins of the nerve, as, if blood had found its way so far as the under surface of the medulla, it would most likely have penetrated to the spinal canal and so relieved its pressure effect on the pneumogastric origins; besides, the late and gradual advent of the pneumogastric symptoms was more likely due to cumulative pressure from above than to so late a secondary hemorrhage as this should be, were it the direct cause of pressure, remembering that the medullary impediments did not exhibit themselves until the ninth day after the injury. This was rather an important point in determining operation, as a surgeon would naturally be slow to use the trephine if he believed basic extravasation to have taken place.

Considering the whole story of the case, and in view of the inevitable death of the patient if not relieved by treatment, it was determined to trephine him. This was done June 21, the day on which he exhibited the pronounced conditions just described, and the ninth after his accident.

The patient was completely comatose, and no anesthetic was used. Taking the injury over the fissure of Rolando as the point indicated for operation, because, although not in the centre of the engaged portion of the motor area, a possible fracture existed there, two incisions were made, one downward and outward behind it, the other running horizontally forward, so as to include a rectangular flap. The scalp and pericranium were raised together, and the bone found to be free from any appearance of injury. A trephine, with a diameter of about $\frac{3}{4}$ inch was applied, and on the disc of bone being removed, the antero-inferior edge of the opening disclosed the edge of a well-formed blood-clot, evidently reaching downward and forward over the parietal area. The incisions were extended, so that each measured about an inch, and a second trephine opening was made immediately below and in front of the first. The projecting tongues of bone between the two openings, which ran into each other, were then cut off with a bone-forceps, and an oval opening, measuring $1\frac{3}{4}$ inch, rendered available for

removing the clot. This was effected by a director, the finger, and a current of sublimate solution, and a cavity between the bone and dura mater emptied, which was circular in outline, covering all that portion of the motor area which lay anterior and inferior to the trephine hole, and was at least 1½ inches in diameter; at its centre the clot was so thick that the dura mater was distant from the cranium about ⅝ inch When this stage of the operation was completed, the dura mater began to rise toward the cranial wall, so that when the wound was sutured it was within $\frac{1}{10}$ or ⅛ inch of it. Signs of returning brain power at once showed themselves, and before the patient was taken off the operating table he moved his left arm and leg with tolerable freedom, asked for a drink of water, which he readily swallowed, and gave vent to some rather bad language.

Some little oozing of fresh blood took place, but gave no trouble. Strict antiseptic measures were observed; the solutions were of corrosive sublimate, 1 to 3,000, and the spray carbolic acid. The wound was sutured, except at its angle, where a drainage tube was inserted, and dressed with sublimated gauze and iodoform cotton. The dressing was changed daily, the drainage removed on the third day after operation, and the sutures on the fourth. An uninterrupted good recovery was made, pus appeared freely on the sixth day, but without any odor, and continued to be discharged for two weeks longer, when the discharge ceased, and the wound closed. The temperature, which was 98° on the morning of operation, rose on four occasions during the ensuing ten days to 100°, but, for the rest of the time the man was under treatment, was practically normal. The evening of the day of operation the paralysis and brain symptoms had all but disappeared, and he could pass water voluntarily. A day later he was in a perfectly normal condition as regards any brain symptoms. He was kept under observation until September 20, when he left hospital. He again presented himself on November 10, when he had a sinus discharging at the angle of the original wound. I received him into hospital, and the next day removed a small fragment of bone from the trephine hole. It had evidently been separated from the inner table, and showed clearly from its form that a fracture of the vitreous table had existed. The sinus has since continued to discharge a gradually diminishing amount of pus, but I cannot find denuded bone, and his excellent general health is in no way impaired.

If another case, resembling this in the extensive separation of the dura mater from the bone, offers itself for treatment, I will be disposed to make one addition to the methods here employed. That is, if a drain should be necessary, I will consider the propriety of making it as efficient as possible by forming a small trephine opening at the nearest accessible point to the lower edge of the line of separation between the cranium and dura mater. The more perfect drainage thus afforded would, I believe, promote the healing of the cavity, and lessen the risks of suppuration, by offering a free and depending exit to pus or any other fluid present.

The case had some features of great interest. Not the least amongst these is the lesson it teaches as to possibility of making an accurate diagnosis, even in an instance so obscured by want of definite history as this was. There is nothing more clear than the justice with which Mr. Hutchinson, in his "Lectures at the London Hospital," points to the enormous difficulty which often exists in dis-

tinguishing compression, from laceration of the brain due to one cause or another. I escaped this dilemma and was able to arrive at a conclusion justifying a useful operation by two circumstances—first, that I could, independent of any knowledge of a fracture enabling me to localize the hemorrhage, put my finger over the motor area and say with sufficient accuracy, "there is pressure here over the cortical centres for the upper extremity; it extended downward and forward to those for the face; it afterward reached upward to those for the lower extremity." The sequence is anatomically perfect. First a brachial monoplegia: then, as the blood or pressure extends, a facio-lingual; and finally, a crural paralysis. Again, I was justified, using the knowledge of the fact that cortical lesions of the motor area do not cause anesthesia in any form, and that no loss of sensation was present here at a time when the condition of the man permitted that fact to be tested, in assuming that the pressure was probably between the dura mater and bone; a decision to which I was further helped by the monoplegic condition which at first was present. To what, I ask, do I owe the knowledge on which this judgment was founded? Largely to the humane and benevolent investigations of those biologists whom weak, credulous, or mistaken people are actively pelting with the verbal filth of prejudice and ignorance — people who would prefer that this man, formed in the image of his Maker, should die, rather than their feeble sentiment be offended by a painless experiment on an ape.

Another point of interest is the very large size of the clot which was present, and the late development of the grave symptoms which were producing death. The clot was so uniform in color and consistence that I am persuaded it was all the result of primary or intermediate hemorrhage, and that the failure of brain power on the ninth day was due, not to added pressure, but to the increased intravascular tension due to the vascular spasm produced by irritation of the sensory nerves or their centres, which, as Duret has shown, can destroy life before the amount of extravasation is reached which is capable by itself of producing a fatal disturbance of cerebral function.

As bearing on localization of function, this case has an interest beyond the corroboration it affords to what is held concerning the seat of the cortical centres for the various parts of the upper extremity, and the situation of that facio-lingual area. It helps to prove what is generally believed as probable, that the centres for the leg do not extend behind the fissure of Rolando into the superior parietal lobule at the point indicated by Ferrier as No. 1 area. I have made the most careful measurements of this man's skull, both by the method of Reid and Thane, and I am satisfied that the centre of the upper trephine hole covered exactly the superior part of the fissure of Rolando about $\frac{5}{16}$ inch from the median line. If it be remembered that the clot was found to extend downward and forward from the lower margin of this opening, it will be at once seen that it did not at its postero-superior limit approach within $\frac{1}{8}$ inch of the anterior edge of the fissure, and that the superior parietal lobule could not have been directly engaged. If it be urged in answer to this that the pressure producing the effect might be remote, it may be replied that in this case the remote pressure effect, that on the medulla, which undoubtedly did exist, seemed to expend itself downward in the direction of gravity, as might naturally be expected.

Independent of these points, the case, as one in which no defined bone lesion

served to localize the hemorrhage, belongs to a class sufficiently rare to deserve notice. If I required any other apology for presenting it at such length, I would have it in the words of so eminent a surgeon as Mr. Hutchinson, who says, speaking of instances of effusion of blood between the bone and dura mater: "These are especially important, because generally supposed to be capable of relief by treatment. Yet it is a remarkable fact that the modern annals of surgery do not, so far as I am aware, contain any cases in which life has been saved by trephining for this state of things" ("Clin. Lect. Lond. Hosp.," 1867–68). The present is but one of two instances which have come under my own notice. In the *Medical Press and Circular*, of December 17, 1879, Mr. Thompson communicated the case of a child whom he had trephined in the Richmond Hospital during the early part of that year for primary subcranial hemorrhage over the right parietal region, and who made an excellent recovery. There are others recorded, for I find in Ashhurst 40 cases collected, several of which have occurred within the last 20 years. Of these, 24 recovered and 16 died; 22 of the 40 were primary operations, and of these 8 proved fatal; 19 were secondary operations, and of these 8 recovered.

The lesson of this case has impressed itself deeply on my mind; for, in other practice as well as in my own, I have seen instances in which life might, as I now believe, have been saved by operation such as this. In one case in particular, where a trephine hole was made by one of my colleagues, it was proved afterward that the opening barely escaped the discovery of a clot, which a greater knowledge of localization than we then possessed, and a second perforation, would have enabled us to discover and remove, with the probable effect of saving life.

On a careful study of the light which modern investigation has thrown on the localization of intracranial pressure, and the security which modern surgical methods have given to the operation of opening the cranium, and bearing my clinical observation of deaths from doubtful intracranial accidents in mind, I have come to this conclusion for future guidance—that *if I am in doubt I will operate;* that whether I believe the blood to be subcranial or subdural, I will not, so long as evidence of such constitutional disease or local condition as points to apoplexy is absent, allow a patient to die without giving him the chance of escape from a fate which appears inevitable if the surgeon holds back. Why should we hesitate to open the dura mater even if the bleeding be arachnoid? Are not the numerous cases which exist, of recovery when the brain has been exposed and extensively lacerated, sufficient answer to the policy of hesitation?

Loofah, a Vegetable Skin-scrub for Aseptic Operations.

At the meeting of the Philadelphia County Medical Society, April 11, 1888, Dr. John B. Roberts read the following description of the Loofah, a vegetable skin-scrub, for aseptic operations: The necessity of scrubbing the integument thoroughly with soap and water, in order to remove dirt and secretion, before operating aseptically upon the part, has recently compelled the provident surgeon to carry with him to operations a bristle brush, such as is used for cleaning hands and finger nails. I have recently saved myself the expense of supplying brushes for emergency operations, and, avoided the inconvenience of carrying away from the patients' houses such wetted brushes, by using portions of the peeled and

macerated fruit of the loofah or towel gourd (*Luffa Ægyptica*). A few of these segments are carried in my operating-case at all times, and, when once used, are thrown away. According to the London *Chemist and Druggist*, this gourd is grown extensively in the West Indies as well as in Africa and Arabia; but I am told it can be cultivated in Philadelphia gardens. It is a cucurbitaceous plant, with fleshy fruit which resembles, in shape and size, the Indian clubs used for calisthenic exercises. When the epidermis, mucilaginous pulp, and seeds are removed from this fruit, there remains the fibrous network or skeleton, which when dried, acts as well as a scrubbing brush for the skin. This dried skeleton, when wet, is harder than a sponge, though perhaps rather softer than a bristle brush, and acts exceedingly well as a skin-scrub for obtaining an aseptic condition of the skin. I have been able to get with it sufficient friction not only to thoroughly cleanse the skin, but also to produce in a few moments an erythema. This could hardly be accomplished by so soft an article as a sponge, which is, on account of its softness, unsuited for a surgical cleanser.

The prepared skeleton, or loofah, as it is called commercially, is cut, transversely to its long axis, into pieces about two inches long, which, if desired, may afterward be split longitudinally. For my own use, I prefer the unsplit segment which seems to have a rather rougher and harder surface, and better removes the dirt and secretions from the crevices of the skin. As the entire loofah can be bought for a few cents, these segments—of which from five to ten can be made from each—cost not more than two cents apiece; to throw them away after using is, therefore, no great extravagence.

It will be understood, I trust, that this material is available for scrubbing the skin of the patient, but it is not suitable for cleaning the spaces under the surgeon's nails; for that purpose I always carry a toilet nail brush. My advocacy of the loofah is for cleansing the skin of patients at whose houses a brush for cutaneous purification is often not readily obtainable, though a new and clean scrubbing brush, such as is used for floors, would be perfectly satisfactory.

QUARTERLY

COMPENDIUM

OF

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A SYNOPSIS

OF

AMERICAN AND FOREIGN MEDICAL AND SURGICAL LITERATURE.

EDITED BY

CHARLES W. DULLES, M.D.

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I. ANATOMY, PHYSIOLOGY AND PATHOLOGY.

Experimental Researches on the Virulence of Tubercular Matter.

In inquiring into the origin of epidemics, it is felt how necessary it is to recognize the channels of diffusion, and the vital resistance of the infectious microbes. The germ of glanders possesses but little vitality; desiccation kills it; putrefaction shortens its life; and the chances of infection, when not immediate, diminish, and rapidly disappear as time proceeds. The germ of tuberculosis, on the contrary, realizes a collection of conditions eminently favorable for more remote infection, for it survives the majority of microbes usually associated with it. Neither drying nor putrefying appears to destroy it, whilst both processes often allow of its being distributed through air or water. MM. Cadéac and Malet (*Lyon Médical*, No. 25) have sought to discover the time required to destroy the germs of tuberculosis in desiccated, putrefied, or frozen matter. The experiments prove that tubercular matter dried and pulverized may preserve its virulence, since 102 days after its preparation it was capable of transmitting tuberculosis. Schill and Fischer maintain that tubercular matter only loses its virulence after six months. Pietro asserts that well-dried sputa may remain infective for nine or ten months if maintained at a mean temperature 77° F., but it appears probable to MM. Cadéac and Malet that the virulence does not persist after thirty or forty days, unless special care is taken to preserve it. M. Galtier has found tubercular matter to be virulent after fifteen days, one month, and thirty-eight days of desiccation. These somewhat conflicting results are sufficient, however, to show the desirability of completely destroying all the tubercular matter ejected from patients, and are also an argument in favor of cremation. MM. Cadéac and Malet find that the virulence is maintained for 150 days in pieces of tubercular lung exposed during winter and spring to the atmosphere. When dried pieces have a considerable volume, the virulence lasts longer than when the matter exists as fine dust. It is probable that the rapid disappearance of virulence in the fine dust is due to the action of the oxygen of the atmosphere, which can then come into direct contact with all the tubercular molecules. As to the influence of putrefaction, 167 days appeared to be the limit of tubercular virulence in tubercle allowed to putrefy by itself. About 120 days was the duration of virulence when the tubercle was allowed to decompose in water. Tubercular liquids exposed to the air and to various external conditions more rapidly lose their virulence than do tubercular solids. In other words, putrefaction exercises much more rapidly its destroying effects when the putrescible mass is of but little volume. The duration of the preservation of virulence in hard and compact tissues like the tubercular lungs of ruminants is also proportional to the size of the organ submitted to putrefaction. It is the same to a certain degree for

tubercular matter submitted to the process of desiccation. In the numerous experiments from which the above conclusions were arrived at, the pieces of tubercular lung were kept at a temperature from one degree to eight degrees below zero C., in such a fashion that the matters remained frozen sometimes for more than a week. Yet virulence was maintained for seventy-six and one hundred and twenty days.—*Lancet*, June 30, 1888.

Carcinoma of the Peritoneum.

At the meeting of the *New York Pathological Society*, April 11, 1888, DR. HODENPYLE presented specimens showing carcinoma of the peritoneum, and carcinomatous nodules in the liver, spleen and body of the uterus.

The patient was a woman forty years old; a widow for two years; family history negative. She was married at the age of seventeen, up to which time she had always been healthy. She had had two children, the last thirteen years ago; no miscarriages. Menstruation was regular up to the age of thirty-four years, when it ceased. Since then she suffered for a considerable time, in place of her regular monthly periods, with difficult, painful and frequent micturition, severe pain in the back, and slight swelling of the abdomen. In July, 1887, she was taken with pretty severe pains in the hypogastrium, coming on in attacks lasting about twenty minutes. In September of the same year she noticed a "lump" in the right iliac fossa, which gradually grew in size, and was accompanied by swelling of the abdomen. She was then admitted into the New York Hospital, where she says she was examined under ether; that when she came out from the ether her abdomen was tightly bandaged, and when this was removed there was seen a small, nodular, soft, painful growth protruding from the umbilicus. She was a good deal emaciated, and a microscopical examination of the growth at the umbilicus showed it to be an epithelioma. Abdomen moderately distended; liver normal in size. No splenic dulness. There was a semi-fluctuating mass in the right iliac fossa, three inches in diameter. There was also a large flat mass in the centre of the abdomen, to which the growth at the umbilicus seemed to be connected. The inguinal glands were enlarged. Upon examination per vaginam, the body of the uterus and the ovaries were found to be converted into a large, hard, dense mass. The patient died exhausted, April 8, 1888.

Autopsy.—Rigor mortis not well developed. Emaciation extreme. Moderate anemia of left leg. The right pleural cavity contained a small amount of clear fluid. The right lung was large and œdematous, and contained three grayish nodules about two cubic centimetres in size. The left lung was small, being compressed toward the vertebral column by an accumulation of clear serum, inclosed by a thick, rather soft, capsule. The fluid within was contained in a number of thin-walled sacs. Bronchial glands enlarged and very soft. The adjacent pericardium was greatly thickened. Heart was very small, but otherwise did not appear to be abnormal. The abdomen contained a small amount of clear fluid. The growth at the umbilicus was continuous with a large irregular mass beneath the peritoneum, to which were attached the greater omentum and portions of the intestine. The diaphragm covering the liver was greatly thickened, and the liver immediately beneath was converted into a zone of yellowish-

white tissue, about one centimetre in thickness, and considerably softer than the surrounding liver tissue. Scattered through the viscus were several large whitish masses, and the rest of the organ was moderately fatty. The spleen was soft, and contained a large tumor mass. Pancreas, suprarenals, and kidneys showed no lesions. On the external surface of the gall-bladder, mesentery, intestines, and parietal layer of the peritoneum were a very great number of larger and smaller spherical or irregular masses. In the pelvic cavity was a large mass, partly cystic, on both sides of the uterus, the body of which was greatly enlarged, the cervix and endometrium being fairly normal. The bladder was normal. The ovaries could not be made out from the tumor mass. The inguinal glands were greatly enlarged and thickened.—*Medical Record*, July 21, 1888.

Micro-organisms in Empyema.

At a meeting of the Charité Medical Society at Berlin, last January (*Berl. klin. Woch.*, No. 20) Dr. A. Fraenkel gave an interesting account of the etiology of empyema. He remarked that in the majority of cases of sero-fibrinous pleurisy no micro-organisms can be found in the exudation, and that the modern tendency was to regard the majority of such pleurisies as of tubercular origin, even where no bacilli could be found; but he did not think the old doctrine of primary serous pleurisy was to be entirely disregarded, even if its occurrence was more limited than used to be thought. In purulent effusions, however, micro-organisms are mostly present, and Dr. Fränkel detailed twelve cases of various origin. These included three cases which were quite obscure in their commencement; and in them all only streptococci could be found in the exudation, suggesting the question whether they were not examples of primary purulent inflammation of the pleura, although in the majority of cases the empyema is secondary to pneumonia or tuberculosis. In three cases of the former class, pneumonococci were found exclusively in the exudation, a discovery which conclusively proves the prior occurrence of pneumonia in such a case, although that disease may have been overlooked by the physician. It was also suggested that such cases are more liable to recover spontaneously by evacuation through the lungs than those which have no such antecedent, and in which the empyema is attributed to streptococci. Then there are empyemata of tubercular origin. Four such cases were reported, of which two were associated with pneumothorax; and the author agreed with Rosenbach and Garé as to the difficulty of detecting tubercle bacilli in such empyemata. Yet, even when the bacilli were not found, inoculation experiments proved that the pus contained the tubercular virus. He confirmed the oft-repeated observation that in tubercular pyo-pneumothorax the exudation has no tendency to putrefy; whereas in non-tubercular cases, when a communication is established between the bronchi and pleural sac, putrefaction commonly occurs. Professor Senator explains this absence of putrefaction in tubercular pyo-pneumothorax by the filtration of the air through the lungs, and the high percentage of carbonic acid in the air of the cavity, which may interfere with the development of putrefaction. Dr. Fränkel said that these explanations belonged to the pre-bacterial epoch, and that at the present day other suggestions must be proffered. He pointed out that many varieties of exudation occur with pneumothorax. In

some cases there is no exudation; in others it is sero-fibrinous; in others purulent. Air alone does not excite inflammation, and the absence of putrefaction in such cases must be ascribed to the absence, or very scanty presence in tubercular vomicæ, of micro-organisms other than the tubercle bacillus. Traube and others have often pointed out the rarity of putrescent changes in phthisical lungs. Moreover, it would seem as if tuberculous pus did not form a suitable soil for the growth of other organisms. Dr. Ehrlich gave his experience of the examination of pleuritic exudations for micro-organisms, and confirmed the statement of their absence from serous effusions. As regards purulent effusions, among nineteen cases examined during the last two years, only seven yielded the tubercle bacillus. In the rest the failure to detect the bacillus led to the exclusion of tuberculosis in the diagnosis, which in every case was confirmed, either in the complete recovery of the patient after operation, or in the absence of tubercular lesions after death. The test, then, should be of great value, especially in determining whether an operation, which tuberculosis contra-indicates, should be performed or not. In a further reply to a question by Dr. Fränkel, Dr. Ehrlich stated that the detection of the bacilli was not always easy, and required straining for one or two hours in cold aniline fuchsin; then careful decoloration in nitric and sulphanilic acid solution and free washing in water, methyl blue being used as the contrast stain. By this method he had detected the bacilli in pus which had been declared to be free from them.—*Lancet*, June 30, 1888.

The Urine of Syphilitic Patients.

PŒHL, of St. Peterbsurg, according to *La Semaine Médicale*, has been inquiring into the character of the urine of syphilitic patients, with the view to determining the explanation of the non-communicability of syphilis to animals. He thinks that the immunity from syphilis prevalent amongst the lower animals is not due to any difference of tissue, but to the difference in the metabolic changes which take place in the animals' bodies. In order to elucidate his theory, he analyzed urine supplied by healthy individuals and that obtained from syphilitic persons, and then compared the results with the analyses of urine derived from monkeys, dogs, horses and pigs. He found that the urine of syphilitic persons showed a diminution of urea, varying in amount from 9 to 13½ per cent., and this was associated with an increase of indican. As abnormal substances, albumin and peptones were found. Pœhl thinks it very probable that the syphilitic virus, or the micro-organism of the disease, causes some diminution in the processes of oxidation in the body. The analyses of the urine of the animals which were submitted to the experiments showed that the processes of oxidation are more pronounced in animals than in man; and he concludes, therefore, that this difference may perhaps be one of the causes of the immunity from syphilis which is noted in animals.—*Medical Press and Circular*, July 25, 1888.

Causes, Degrees, and Means of Sleep.

The probable causation of sleep is a subject which has often in the history of physiological research attracted the efforts of scientific speculators. It cannot be said that, after all, we are now able to define the processes involved in its restorative influence; but some suggestion of its nature is, nevertheless, within

the reach of rational explanation. Most of our readers, says the *Lancet*, July 7, 1888, have doubtless formed some opinion on this subject, and have, perhaps, accepted as a provisional creed one or the other of the theories advanced with regard to it. To some it may appear that the accumulation of waste products in the brain is enough to account for sleep. Deficient oxygenation offers another tempting hypothesis. Each of these processes, no doubt, may exert a certain soporific power, and probably thus operates in its degree; but it is difficult to see how either can be taken to afford the sole interpretation of that state of rest which comes with singular regularity of recurrence to all more or less, whether sick or healthy, idle or actively employed. There is something to be said also for the theory that sleep is a consequence of cerebral anemia. The pathological drowsiness of hemicrania, of epilepsy, and some hysterical states favors this view, as does also the fact that pallor of the fundus of the eye has been noted in connection with natural sleep. These observations do not, however, settle the question whether such anemia is commonly a cause or merely a part of the general relaxation of energy implied in the soporific process. So far, we can only say of sleep that, following and preceding a period of wakefulness and constant stimulation of the senses, it represents a transient interval of rest from the activities of tissue change. It therefore corresponds with the quiescence of every organ and more especially of the nervous system, and with a timely languor of circulation in the resting tissues. By the gradual changes of evolution it has now virtually become a mere habit of mind and body. At first it was doubtless the outcome of exhaustion and an expression of the well-known law, which it still fairly illustrates, that action is balanced by reaction. The opposite condition of sleeplessness will commonly be found to originate in some continually acting cause of nerve excitement. This may consist in the presence of a local irritation or very usually in the abnormal irritability of a sensorium over-wrought, and unduly sensitive to the most trifling impressions. We might also refer to instances of an altogether different condition, in which anemia and sleeplessness are closely associated. This fact is sufficient to show that healthy sleep requires a certain due nutrition of brain tissue, and that cerebral anemia or hyperemia has with respect to it only a relative significance. The influence of various toxemic states must also be remembered in dealing with this subject. Whether due to impairment of function in the lung, liver, or kidney, the only reliable remedy for inconvenience thus caused is, of course, to be found in correcting the failure of excretion. Whatever, indeed, the form of error, be it the want of the excess of sleep, relief by means of so-called sleeping-draughts and the like is and must be only palliative. The one effectual means of cure in any case is no mere drug, but a method, and consists in the detection and removal of the source of mischief by a well-considered system of treatment.

Anomalies in the Distribution of Nerves.

BIRMINGHAM notes these anomalies in the *Lancet*, March 3, 1888. A spinal accessory nerve ending in the sterno-mastoid, without giving any branches to the trapezius, which was supplied by the third and fourth cervical nerves. 2. Buccal branch of the inferior maxillary nerve absent; its place taken by a nerve arising from the orbital branch of the superior maxillary division of

the fifth nerve, which pierced the outer wall of the orbit and ran down to be distributed as a normal long buccal. 3. A nerve larger than the long pudendal, arising by two roots from back of sacral plexus, corresponding to the second and third sacral nerves, piercing the great sacro-sciatic ligament, crossing and communicating with the long pudendal, distributed to the skin of the upper half of the inner aspect of the thigh. 4. A nerve to an axillary muscular arch, springing, without communicating with any other nerves, from the inner cord of the brachial plexus, close to the origin of the nerve of Wrisberg. 5. A small occipital nerve divided into two parts, the posterior crossing the occipital triangle obliquely, passing under the trapezius, piercing the muscle two inches from its insertion, giving off no branches, and returning again to the posterior border of the sterno-mastoid to be distributed with the rest of the nerve. 6. The origin of the median nerve by three pairs of heads; one head in each pair came from the inner, the other from the outer cord of the brachial plexus, the artery passing between the heads. The first pair had a high origin, the second was the largest, and situated at the normal level; the third pair, the smallest, joined the others three inches down the arm. 7. Absence of the nerve of Wrisberg arising from the inner cord of the plexus; its place taken by a branch of the first dorsal nerve, which ran outward between the pleura and the first internal intercostal muscle, pierced the thoracic wall and reached the axilla. The distribution was that of the nerve of Wrisberg. This anomaly he has found three times.

Relation of the Excretion of Uric Acid to Disease.

Dr. A. Haig, as the result of a series of observations and experiments upon the relation of the excretion of uric acid to disease (*Journal of Physiology*, vol. viii, Nos. 3 and 4), thinks that he has shown:

1. That the excretion of uric acid can be controlled by drugs and foods in a way and to an extent not previously known; and that, whatever the amount excreted to-day, it may, within certain limits, be made either greater or less to-morrow.

2. That, when uric acid excretion is diminished relatively to the urea, the diminution is due to retention in the liver and spleen, and possibly in some other organs and tissues, of part of the uric acid which was formed; and, conversely, when uric acid excretion is increased relatively to the urea, such increase is due to a washing out of a store previously accumulated in the above organs and tissues.

3. That the formation of uric acid bears an almost constant relation to that of urea, though its excretion can be varied by food and drugs to a considerable extent.

4. That uric acid is probably never in excess in the blood, except when alkalies or other solvents wash it out in considerable quantities from the stores which have gradually accumulated in the above mentioned organs.

5. That excess of uric acid in the blood, brought about in this manner, is a sufficient cause of many of the symptoms of the diseases mentioned, and probably of others also.

6. That drugs and foods which diminish the solubility of uric acid diminish its excretion, and lead to retention and accumulation; and, conversely, foods

and drugs which increase its solubility facilitate its excretion and prevent retention.

7. That drugs which diminish the solubility and excretion of uric acid are harmful in the diseases connected with it; while drugs which increase its solubility and excretion are useful in these same diseases.

Dr. Haig found that his attacks of migraine could be produced at will by increasing the acidity of the urine, and thereby favoring the retention of uric acid. He prefers to call migraine a uric acid headache. Attacks of gout and many attacks of epilepsy he traces to a similar cause.

Referring to the effect of diet on uric acid excretion, the table of Lehmann is given:

	Urea.	Uric acid.
Mixed diet	32.4	1.1
Animal diet	53.1	1.4
Vegetable diet	22.4	1.0
Non-nitrogenous diet	15.4	0.7.

This shows that, in fact, an animal diet increases the absolute amount of uric acid; though that diet evidently affects much more decidedly the amount of urea. But Dr. Haig asserts that the real significance lies in the fact that the uric acid is relatively diminished by an animal diet. Thus:

	Urea.	Uric acid.	Relation.
Mixed diet	32.4	1.1	1–29
Animal diet	53.1	1.4	1–38
Vegetable diet	22.4	1.0	1–22
Non-nitrogenous diet	15.4	0.7	1–22

His view is that the amount of uric acid manufactured daily is in a fairly constant ratio to urea: viz., 1 to 33. Thus, he says: "It will be seen that on mixed diet there was slightly excessive excretion of uric acid; on animal diet considerably diminished excretion (retention), and on vegetable diet excessive excretion, some of the previous retention being washed out. And a continuance of the animal diet would obviously soon produce a store of uric acid sufficient to account for anything from a 'bilious' to a gouty attack. The results in these tables are similar to those I have obtained with various diets, and the relation of uric acid to urea are just those I meet with in my everyday work.

"I have been led to infer from all these facts that, while the formation of uric acid alters but little from its relation to urea of 1 to 33 (subject, I have no doubt, to some small variations), its excretion is subject to frequent and great fluctuations, which account for its action in the production of disease."

The effects of drugs are stated as follows:

Iodide of potassium has, in five grain doses, but little action on the excretion of uric acid; in larger doses it acts apparently merely as an alkali. Iodine taken as the tincture has little or no direct effect.

Phosphate of sodium is a well-known solvent of uric acid, and it does, just as one would expect, greatly increase its excretion; it is probably the chief solvent of uric acid which is naturally present in the body.

Salicylates have the very important action of rendering the excretion of uric acid independent of acidity—that is, a rise in acidity does not cause reten-

tion while salicylates are present in the blood; and this fact may explain much of the value of these salts in diseases connected with uric acid.

Lead and Iron.—The urates of these metals are very insoluble, and they cause, as one would expect, retention of uric acid, which, as we shall see, may explain their action in several diseases.

Colchicum.—This indirectly lowers acidity and facilitates the excretion of uric acid. It may also have a direct action on the nerves in relieving the pains of gouty arthritis.—*Medical Record*, June 21, 1888.

Case of Phosphorus Poisoning.

An inquest was recently held, according to the *Lancet*, July 14, 1888, by Dr. Danford Thomas, touching the death of a woman twenty years old. The deceased, by her own admission, took some rat paste on Tuesday, June 19. Death ensued eleven days later. The initial symptoms were not very marked; in fact, so slight were they that her husband did not believe her confession, and consequently took no active steps to enforce proper treatment. Nausea and vomiting continued with moderate severity for a few days, and then ceased. There ensued a feeling of depression. Towards the end, insensibility, icterus, and somewhat profuse metrorrhagia supervened. At the necropsy the skin and conjunctiva were observed of a bright yellow color. There was no organic disease save of a recent nature, and entirely attributable to the action of the poison ingested. The stomach contained about three-quarters of a pint of dark claret-colored fluid, consisting largely of blood derived from capillary hemorrhage from the mucous membrane. There was no solution of continuity of the mucous membrane, which showed traces of recent irritation. The whole surface presented a yellow icteric tint, except the summits of some of the rugæ, which were of a bright pink color. There was also faint wrinkling of the mucous membrane. The upper part of the small intestine was affected in much the same manner as the stomach. The large intestine contained a quantity of almost colorless feces. The liver was shrunken, weighing only twenty-six ounces, and both on its outer and sectional surface exactly resembled the appearances produced by acute yellow atrophy, except that there were greater congestion and interstitial hemorrhage in patches. The lobules of the liver were in many places unrecognizable; in others they stood in bold relief as brilliant canary-yellow patches, standing in strong contrast to the deep dark-red areas of congestion and extravasation. The gall-bladder contained about two drachms of thin grayish fluid, apparently all but devoid of bile. The urinary bladder was empty; the kidneys were enlarged; the cortex was very pale and bile-stained, of greater depth than natural, and of softer consistence. The spleen was not enlarged, nor was it in the least degree softened. In addition to the bleeding from the uterus noticed during life, there was capillary hemorrhage into the right lung and pleura, into the pericardium, and, as already mentioned, into the stomach. The brain was healthy.

The chief points of interest in this case are: (1) The profuse hemorrhage—parenchymatous and surface—a well-known result of phosphorous poisoning, and constituting a section into which a certain number of the cases fall; (2) the almost identical changes in the liver with those incidental changes in the disease known as acute yellow atrophy; indeed, it seems possible that some of the instan-

ces of the latter affection may really own phosphorous poisoning as a cause. It used to be said that the size of the liver in the two conditions afforded a guide for making a differential diagnosis; but, as will be seen from the above case, it may signally fail.

Glioma of the Medulla Oblongata.

Dr. William Osler, Professor of Clinical Medicine in the University of Pennsylvania, reports a case of this kind in the *Journal of Mental and Nervous Diseases*, March, 1888: The patient, Robert B——, 32 years old, a laborer, colored, was admitted to the Philadelphia Hospital on the 4th of March, 1887. He was a well-nourished, muscular man, and gave a very good account of his condition and history. He knew little or nothing of his family; had lost his mother and all his brothers and sisters. He had had a chancre two years ago, with secondary symptoms. With the exception of a severe attack of headache, with dizziness, in 1885, he had been well until six or eight weeks before his admission, when he began to have fits, for which he was admitted to the Pennsylvania Hospital, where he remained a week. At first he had only one or two attacks a week; but at the time of his admission they recurred more frequently, so that he had three in six days; he began also to feel a little uncertain on his feet.

His condition on the 6th, when first seen, was as follows: Is intelligent and answers questions promptly. Complains of headache, unsteadiness in walking, odd sensations over his body, and fits. There is no wasting, no paralysis. The grasp of the hands is fairly strong; muscular power of legs unimpaired. He complains of great stiffness and pain in the muscles of the back of the neck, and on getting up he carries the head and back stiff, but turns the head easily from side to side. He walks without assistance; but says he feels "drunk," and he tends to sway. He paced the ward alone, and with the aid of an assistant's arm went to the ophthalmoscope room, fully 100 feet off. The co-ordination in hands is impaired; he does not grasp objects quickly, nor can he rapidly touch the tip of his nose. He gets out of, and returns to bed with great deliberation, like a man with lumbago. Sensation is everywhere retained; feels a pin-prick rapidly. Complains of numbness, tingling, and creeping feelings in the hands and feet. Says his legs "feel as if something had laid upon them and put them to sleep." Has also sensations of cold in hands and feet, and, to use his own words, "they are warm, but they feel so cold." This was a very frequent complaint. Sensation in region of fifth nerve normal. Special senses unimpaired; he hears the watch well at either ear; no affection of taste or smell. Vision good. The eye-grounds were examined twice; no neuritis; veins looked full, but there were no special changes. The headache was not constant; was chiefly occipital, and he did not seem clearly to be able to separate it from the painful feelings of stiffness in the nape of the neck.

Reflexes are present; patellar somewhat exaggerated. In the fits the movements are bilateral; he froths at the mouth; says he does not lose consciousness. This is probably a mistake. He fell out of bed last night in one and knocked his head. They last from five to fifteen minutes, and he comes out of them, as a rule, with the mind clear.

The appetite is good; he vomits sometimes; bowels regular. There is a

loud apex systolic murmur, transmitted to axilla, and the pulmonary second sound is accentuated. Pulse fair in volume; 90 per minute. Urine clear; no albumin.

Taking into consideration the fact that he had had a chancre two years ago, the lesion was thought to be syphilitic, and he was given large doses of potassium iodide.

On the 7th and 8th of March he was better, but the pain in the back of the neck was severe. On the 9th the tingling and numbness of hands and feet were not so distressing, and he had less headache. He had a severe convulsion during the night. There was increasing difficulty in getting in and out of bed. Pupils were dilated. He talks clearly and says he is improving.

On the 10th, at 12 o'clock, he was given a dose of the iodide and immediately had a sort of fit; but he did not move the hands. At 12.45 Dr. Osler came into the ward and found him in the following condition: Is unconscious. Respirations very slow, three, four and five in the minute. Inspiration is prolonged and quiet; expiration short and noisy. Pulse, 100–108, fair in volume. At 12.55 the respirations had fallen to two in the minute, and pulse stopped somewhat suddenly. No heart-beat or heart-sound could be detected after 12.55. Last inspiration at 1 o'clock.

Autopsy.—Twenty-four hours *post-mortem.* Old scars on forehead and arms. Calvaria normal, perhaps a little thick in the frontal region. Much blood escaped on removal of brain. Dura was adherent, sinus very full—on either side there was a line of fresh-looking pachymeningitis. Arachnoid was clear at base. Veins of pia dilated and full. Parts at base presented the following condition: Olfactory and optic nerves were small, but normal in color. No effusion in interpeduncular space. Anterior margin of pons was very close to optic commissure. Vessels of circle of Willis contained blood; they were not atheromatous. The third, fourth and fifth nerves looked normal, and those emerging from the lateral part of medulla have a natural appearance. The crura were cut, and cerebrum removed separately. Vessels on the cortex were very full; gray matter of pink-red color. White matter, in section, looked moist and glistening; no foci of disease. The ventricles contained a slight excess of fluid; lining membrane normal. Crura showed no change. Pons normal. The fourth ventricle was dilated, especially in the lateral recesses. The Fallopian aqueduct was not enlarged. The floor of the ventricle looked normal above the level of the acoustic striæ, the right of which were not so distinct as the left. A large vein curled over the left margin of the medulla, at the level of the left striæ.

The lower part of the medulla and beginning of the cord were occupied by a large growth, extending from below the calamus, projecting more on the left than on the right side. It was everywhere covered by pia. On the left side it had a reddish-brown vascular appearance; on the right side the white substance of the medulla was apparent. No trace was to be seen of the restiform bodies or of the posterior pyramids. The olivary bodies were visible, but wider apart than normal, and the lower parts absorbed. The growth reached to within 7 or 8 millimetres (about $\frac{1}{3}$–$\frac{1}{8}$ inch) of the fissure separating the medulla and pons.

The cerebellum was a little compressed just above the tumor. There were no other changes. The upper part of the cervical cord was soft and the postero-

lateral columns had a very translucent aspect. The central canal was somewhat dilated. The tumor is an inch in breadth by three-fourths of an inch in antero-posterior diameter. In fully one-half of the circumference it is in contact with the pia mater of the left side; in the rest of the extent, with the compressed and flattened columns of the cord. In the medulla it does not reach above the middle of the olivary bodies. The tumor was firm, of a red-brown color, with recent hemorrhages into its substance. There were lacunæ in it filled with clots. Histologically, the tumor is composed of a stroma of nucleated fibre-cells supporting blood-vessels which in places are so closely set that the appearance is that of an angioma. In other regions the gliomatous tissue is more dense and the blood-spaces less numerous.

The situation of the tumor, pushing aside and compressing chiefly the posterior columns, explains the disturbances of sensation and the inco-ordination which were the prominent features of the case. It is probable that the central hemorrhages, which looked recent, cause death by increasing the pressure and disturbing the respiratory and cardiac centres which lay just above the growth.

Gliomata of the medulla are rare. Sokoloff has recently described a case,* and has collected seven instances from the literature.

Models Illustrative of Brain Growth and Cranio-cerebral Topography.

At a meeting of the Section of Anatomy of the Royal Academy of Medicine in Ireland, March 2, Professor Cunningham exhibited fifteen models of the human head. He stated that for some months past he had been endeavoring to arrive at such data as would enable him to determine the relative degree of growth of the several lobes and convolutions of the cerebrum from infancy up to adult life. One of the first questions to be solved in approaching such an investigation was: By what standard shall we measure this growth? Shall we take the cranial sutures as our standard of reference? However suited these might be for establishing topographical relations, he considered that they would infallibly lead us astray were we to employ them in the present case. It could easily be proved, he said, that the movement of increase of the subjacent brain did not correspond with the growth of the component bones of the skull. He quoted Féré and Topinard in support of this view, and gave two examples in which it could easily be seen—viz.: (1) the frontal eminence which overlies a different portion of the frontal lobe of the brain in the adult and child; and (2) the different relations which are observed between the squamo-parietal suture and the Sylvian fissure as first noticed by Foulhouze. The measurements must be applied to the brain itself, and for this purpose some means must be taken to preserve its volume and configuration absolutely unchanged after the cranium is opened. To this he had turned his attention, and was now able to prepare the brain, so that when it was exposed *in situ* it would remain absolutely unaltered for at least twenty-four hours. But a further step was necessary. There was necessary more extensive comparison between the different brains than that afforded by columns of figures. It was very essential that the parts of the brain should be fixed and retained in their natural form. For this purpose he had had recourse to models which he

* *Deutsches Archiv für klin. Medicin*, B. xli., H. 5, 1887.

had prepared immediately after exposure of the brain. Two models were prepared of each head selected for investigation—viz.: (1) a model of the head before it was touched; and (2) a model of the same head after it had been prepared, and the brain exposed. The brain was exposed on the right side, but narrow bars of the cranial wall were left in the lines of the cranial sutures.

Professor Cunningham then briefly alluded to some of the points concerning brain growth which he had observed, but stated that until he was able to obtain specimens from children under five years of age, he did not expect to make much advance. In the antero-posterior direction very little difference was observed in the relative length of the frontal, parietal, and occipital lobes above the age of five years. What difference there was could readily be accounted for by individual peculiarities. The temporo-sphenoidal lobe, however, showed some interesting changes as age advanced from childhood to adolescence. It was placed more horizontally in the child; in the adult its tip was turned downwards and inwards, so as to give its long axis a curved direction. Again, its vertical depth in relation to the part of the cerebrum above the Sylvian fissure diminished uniformly and steadily as adolescence and adult life were approached. In discussing whether the relative decrease of the outer surface of this lobe could have any functional significance, Professor Cunningham referred to the recent important investigations of Professor Schäfer upon the temporo-sphenoidal lobe. He also indicated that Dr. Symington had suspected that there was such a decrease in the vertical dimensions of the lobe in question, and had accounted for it on mechanical grounds. The question of cranio-cerebral topography came in as a side issue to the present investigation. There were two distinct methods by which anatomists had determined the relation of the different parts of the brain to the surface of the head—viz.: the *sutural*, which had been followed out with great exactitude by numerous investigators, and that method by which, by means of certain lines and measurements made with reference to well-marked prominences, the subjacent brain could be mapped on the surface of the head. The latter plan was the one most interesting to the surgeon, and to it only he would refer. Hare, Seguin, and Reid had each developed a method of this kind. In so far as Hare's method was concerned, he had nothing but commendation to say of it. It was easy of application, and as exact as any such plan could reasonably be expected to be. Reid's method was in some measure a modification of Seguin's, and, in so far as the fissure of Rolando was concerned, he had found it most unreliable. In none of his specimens did this fissure coincide with Mr. Reid's lines, and in one model on the table it would be seen that even a trephine with a diameter of two inches would have failed to expose the upper end of the Rolandic fissure had it been applied according to Mr. Reid's rules. It was a method, further, which, although easy of application to a drawing of a head upon paper, was exceedingly difficult of application when the living head was concerned. Dr. James Little, in discussing Professor Cunningham's communication said that it was of great practical utility, especially as it appeared that Reid's method was the one that was regularly taught in many schools and studied by a large number of students. Now that cerebral surgery was beginning to make remarkable strides, the localization of the different portions of the brain in relation to the outside became of more and more importance, and therefore the con-

firmation of the results obtained by Hare was of corresponding importance. Hare's method differed from Professor Cunningham's, as it consisted in removing the whole side of the skull, while Professor Cunningham left bridges of bone along the line of the suture. In another respect, also, their methods differed. Hare used no special hardening method, while Professor Cunningham hardened the brain *in situ* with absolutely no shrinking, so that when the skull-cap was removed the cerebral convolutions were seen tightly applied to the dura mater. At the same time, the results showed remarkable uniformity. Hare was of opinion that the hardening tended more or less to displace the brain and make it shrink. He was also averse to freezing the brain, because, when the brain was frozen, unless special means were taken, it was inclined to thaw and become more diffluent than ever. What he relied upon was to get the subjects as fresh as possible. He examined them thirty hours after death.—*Lancet*, May 26, 1888.

An Infant with Two Mouths.

LENDON (*Australasian Med. Gazette*, March, 1888) describes an infant born with two mouths, separated by a fleshy partition extending from the lips to the fauces, where they opened into a common pharyngeal cavity. Faint indications could be seen of separate chins and lower lips, but there was no well-defined sulcus. The alveolar processes of both jaws could be traced in both mouths, but they were in places distorted. The width between the rami on the left side was about one-half that on the right. The two jaws were united so closely that no movement could be obtained between them. The common lower lip had a well-marked frænum. Each mouth had a tongue, the left much the smaller. The nose was large and wide, and presented at the junction of the columella with the lip a third, central nostril. The larynx and trachea were very wide, and it was thought that a groove dividing two tracheæ could be felt. Two hyoid bones could not be demonstrated.

The child died after a few months, but the body could not be obtained for examination.—*New York Med. Journal*, August 4, 1888.

The Past Year's Work in Physiology and Histology.

DR. H. M'CALLUM, of London, in a paper read at the meeting of Ontario Medical Association, 1888, considers the past year's work in physiology.—(*Canadian Practitioner*, July, 1888.):

1. *Respiratory Physiology.*—In this field, two facts can be considered worthy of our attention, *i. e.*, certain experiments on the pleura and Von Fleischl's theory of the heart-beat aiding the oxidation of the blood. A certain London physician (New York *Medical Record*), in experimenting on a large number of living dogs by opening the pleural cavity, found that collapse of the corresponding lung occurred in a very small percentage of cases. But if the dog was dead for any length of time before the operation, the corresponding lung invariably collapsed. He offers the explanation that the pleural secretion has the power of keeping the pleural surfaces in apposition during life. Our former teaching in physiology has done much to retard the surgical treatment of the disease of the pleuræ, by warning the student and surgeon that opening this cavity would be followed by the collapse of the lung.

With regard to the heart-beat aiding the oxidation of the blood, Professor Von Fleischl, of Vienna, has lately advanced the theory that the jar given by the heart to the blood is an important factor in freeing the latter of carbon dioxide. He bases this theory on the law of physics. That a fluid holding a gas in solution or weak chemical combination, having suction applied to its surface, will very readily give off its gas if it be subjected to a smart blow. This would lead one to believe that blows to the chest, in a feeble heart, would aid in the elimination of carbonic dioxide.

2. *Cardiac Physiology.*—Much work has been done in America by Mills of Montreal, and Martin of Baltimore, in this department. Mill's paper, read before the Canada Medical Association, on a plea for a better cardiac pathology, did not receive the credit it deserved. Da Costa's recent discovery in pathological anatomy of a nervous origin to the heart complications in Bright's disease was well foretold by Mills in this paper. Prof. H. Newell Martin, of Baltimore, has demonstrated by carefully conducted experiments on the coronary arteries of the heart that they fill by blood pressure alone, and their pulsation is simultaneous with that of the carotid. It must follow, therefore, that in disease of the aortic valves, whilst good blood pressure is being maintained, there can be no degenerative changes in the heart muscle unless the coronary arteries are themselves affected.

Gaskell (*Journal of Physiology*, Vol. VII, p. 451) makes some interesting investigations into the electrical changes of a quiescent cardiac muscle. He maintains that all tissues are supplied with two sorts of nerves, which he named Anabolic and Catabolic. The function of the first is inhibition, of the second contraction. These ideas he attempts to confirm by vagus stimulation. Stimulation of the vagus in the neck of an animal provokes a positive variation in the muscle of the auricle; while contraction of the same muscle is accompanied by negative (electrical) variation. By using a small dose of atropine in a partly detached portion of auricle (heart of a tortoise), paralyzing the inhibitory action, and operating during repose, the positive variation was prevented when the nerve was stimulated. By the anabolic process, Gaskell means that the muscle fibre is undergoing nutrition, and that while so doing it is incapable of work. Inhibition means, therefore, storage of nutrition in the muscle fibre, while contraction or catabolism breaks down the products of nutrition. Inhibition of the heart being a nutritive process, would not frequent electrical stimulation of the vagus be proper treatment for degenerative changes in the heart muscle?

3. *Digestion.*—Bacteria, in relation to digestion, have been receiving a large share of attention. Pasteur published, in August last, his researches (*L'Union Médicale*, Aug., 1887) on seventeen kinds of bacteria which were found in the mouth on articles of diet. Seven dissolved albumin, ten fibrin, six casein and seven partly converted sugar into alcohol. Pasteur's conclusions are that many micro-organisms are useful in digestion. But these conclusions stop short of the truth. True enough, bacteria convert proteids into soluble material, but this material will not only fail to nourish, but in many cases will act as an irritant poison to the tissues. These toxic products of mycology are now known by the name of ptomaines. Since Pasteur found and cultivated six of these bacteria from the fecal matter, there can be little doubt that ptomaines are generated in

a healthy intestinal canal, though more freely in catarrhal condition. How, then, is a toxic condition prevented in a normal body? Roger, of Paris (*Gazette des Hôpitaux*, 1887), has proved that ptomaines and medical alkaloids are destroyed to a great extent in the liver; so much so, that the latter are twice as potent given subcutaneously as by the portal vein. Roger brought forward facts to prove that it is the glycogen which exercises this protective function. The liver is not the only organ said to possess antitoxic function. McNum (*Brit. Med. Journ.*, January, 1888) works up a claim for the suprarenal capsules. German physiologists have been advancing a similar claim for the thyroid gland.

Lauder Brunton (disorders of digestion) has a peculiar explanation for the bitterness of bile (which he asserts is not always bitter), *i. e.*, it is bitter by virtue of the ptomaines it contains (all cadaveric alkaloids being bitter). He goes further, and asserts that all symptoms of jaundice are due to the ptomaines in the absorbed bile. This, if true, and there is good reason to think it is, would throw light on many a clinical feature in liver disorders.

Another matter of clinical interest is Langendorff's studies on sugar formation in the liver (*Archiv für Physiologie*, 1886). It is well known that strychnine and curare produce when administered to animals artificial diabetes. Langendorff found this due to the action of these therapeutic reagents on a nervous centre. For, when the spinal cord is destroyed about the fourth dorsal vertebræ in frogs, these drugs fail to produce diabetes. If this region was intact, but the other parts of the nervous system destroyed, strychnine operated in producing diabetes. This points to a nerve centre which calls the liver cells into activity, or produces vasodilation of the liver capillaries. This is not all, for in the production of diabetes by strychnine the presence of the liver is necessary, while curare will act without its presence, and the amount of sugar excreted is as great when the liver is removed as when it is present.

Bunge (*Zeitschrift für phys. Chemie*, 1885) found an albuminate of iron in the yolk of eggs, milk, etc., which was very stable, only strong chemical agents setting the iron free. Sulphuretted hydrogen and sulphide of ammonia separate the iron as an oxide in two hours at body heat. He named this albumin hematogin, believing that it gives rise to the hemoglobin of the blood. Working on this line, Bunge assumes that in anemia this albumin is decomposed—the iron being converted into an inorganic compound, which cannot as such be assimilated by the system. Putrescent changes in the food stuffs, in catarrhal conditions, effect this decomposition by generating sulphuretted hydrogen, etc. Bunge thinks that iron administered in anemia is not absorbed and assimilated, but combines with sulphuretted hydrogen, etc., etc., and so protects hematogin of the food from decomposition. He finds a proof of this in the good effect of intestinal antiseptics in anemia.

In regard to the occurrence of iron in the body, Zalewski's experiments are of importance (*Zeitschrift für phys. Chemie*, 1887). He isolated the combinations of iron occurring in the liver, and found that the combinations could be put under two classes: One the organic, which occurs in very small quantities in the liver cells themselves, and is easily detectable; the other in which the iron is held in very strong combination, and needs powerful reagents to separate it. The latter compounds were obtained from the nucleus, and presented all the

characters of the nuclein class of compounds. These experiments of Zalewski raise the question whether or not iron is present in the nucleus of every living cell. Its presence in the nucleus, and its combination with nuclein, which has been so well termed the "ground substance of life," points strongly to the view that iron is absolutely essential to the life processes of the cells. The old view was that iron entered into combination with hemoglobin only in the economy. At the present time researches show that hemoglobin is a degradation product of a constituent of the nucleus holding iron in combination. The tendency of research has been to show that iron does not enter the body in the form of ordinary salts, but in combination with such complex proteids as nuclein, and that only vegetable protoplasm is capable of effecting a combination between albumin and iron.

4. *Blood.*—Gaglio (*Archiv für Anat. und Phys.*, 1886) established the occurrence of lactic acid in the blood of normal rabbits, to the extent of .05 per cent. (in dogs .08 per cent.). Berlinerblau (*Archiv für experim. Pathologie*, 1887) also finds that lactic acid is normally present in human blood. Its relation to rheumatism and rachitis has yet to be discovered. In this field of physiology there has been no better worker than Prof. Osler. His view that the white blood corpuscles do not develop into red, and that the function of the blood plaques of Osler is the generation of the fibrin ferment, are now generally accepted by physiologists.

5. *Urine.*—Posner (*Archiv für Anat. und Physiologie*) maintains that albumins, more especially peptones, are present in the urine of every individual; but the amount is so small that their presence can be demonstrated only after concentrating the urine by evaporation.

6. *Histology.*—Great improvements have been made in the methods and reagents in staining, hardening and fixing tissues. Fleming and Strassburger have done an immense amount of work on the cell, but it was left for Carnoy to complete these studies. He makes four divisions of cell protoplasm: (1) The granules or chromatine bodies; (2) connecting rods between these chromatine bodies in the nucleus he named caryoplasma; (3) these connections without the nucleus he named cytoplasma; (4) the fluid in the cell he named enchylema. He rightly asserts that the chromatine bodies are the seat of life. They are diminished after secretion and exhaustion, and absent in slow death of the cell, as may be seen in cell death from amyloid, colloid or mucoid degeneration. In the light of this histology there can be no doubt that amyloid material is the enchylema or lifeless fluid, plasma holding ptomaine in weak chemical combination or solution, the latter giving the diagnostic color with certain staining reagents.

As to nerve terminations, Pflüger, of Germany, demonstrated the nerves entering into the cells of the parotid gland. McCallum, of Toronto University, demonstrated the nerve terminations in the epidermis and liver. In each of these he found the ultimate endings were in the network of the cell or nucleus.

The Mammalian Heart.

Such knowledge as we possess of the changes which go on in the tissue of the beating heart has been obtained almost entirely from experiments upon the

batrachian heart. Hardly any accurate work has been done upon the mammalian organ. The report of the Committee of the British Association (1847) upon an investigation of the movements of the heart by simple inspection; a paper by Czermak and Piotrowsky (1857) upon the persistence of movements of the heart; and another by Kölliker and Müller (1856), on the occurrence of electromotive changes accompanying the systole, are the most important investigations made upon the mammalian heart, and represent fairly well the position of physiological science in regard to this subject. Therefore the important communications of Drs. Waller and Reid* conducted, on the part of Dr Waller, in his capacity of Research Scholar of the British Medical Association, are of extreme interest, with regard not only to the results obtained, but to the novelty of some of the methods employed, and to the minute care taken to avoid error.

During a course of experiments upon the electromotive action of various tissues, it was found that in the case of mammalian heart the electromotive variations outlast visible contractions, and that the contractions are of an extraordinarily prolonged character. The observers, therefore, carried out a series of experiments with the galvanometer, the graphic method, and with Lippmann's capillary electrometer. With the latter instrument the observations were rendered more accurate, and also recorded permanently in the most beautiful manner, by photographing the movements of the column of mercury on a travelling plate. In this way slight movements, observable with difficulty or not at all by the unaided eye, are clearly evident, as shown by the plates which accompany the articles. For the observations the hearts of cats, dogs, rabbits, guinea-pigs, rats, and sheep were used.

The duration of contracting power in the excised heart was found to be surprisingly prolonged, even though mere fibrillation was not noticed, but only complete ventricular contractions, such as could be recorded by a lever resting on the heart. In a rabbit's heart spontaneous beats were observed for seventy-two minutes, and beats in response to excitation for an hour and a half *post mortem*. Force of contraction, it was found, declines rapidly at first, more slowly at later periods; frequency of contraction diminishes with fair regularity. A bigeminal character is frequently seen, and is more pronounced at the base than the apex. When irregularity of beat occurred, a period of rest was followed by a beat of unusual force; beats in groups, and occasionally an extreme irregularity, in the form of irregular rapid fibrillation (delirium cords) were seen. As time elapsed after removal, the ventricular beat became quite independent of the auricular beat, and was found to outlast it. Such were the general results observed. Special attention was paid to the duration of systole in the excised heart, and the influence which causes its increase or diminution. On removing the heart from the body the systole became greatly prolonged, and the prolongation was exaggerated by placing the heart in a chamber surrounded by ice; in one experiment the duration of contraction in a heart so treated was ten seconds. The full effect of cold was to produce total abolition of contractility,

* On the action of the Excised Mammalian Heart, by Augustus D. Waller, M.D., and E. Waymouth Reid, B.A., M.B., *Philosophical Transactions*, 1887; and A Demonstration on Man of Electromotive Changes accompanying the Heart's Beat, by Augustus D. Waller, M.D., *Journal of Physiology*, vol. viii, No. 5.

both spontaneous and induced by stimulation; this could, however, be restored by the application of warmth. A constant temperature of 40.6 degrees caused rapid decline of contractility, and no prolongation of systole. Therefore, it will be noticed that the mammalian heart agrees with other tissues in showing great excitability and rapid decline at high temperatures, small excitability and slow decline at low temperatures.

A similar prolongation of the latent period of stimulation was also observed under the influence of cold, a common latent period being 0.5 sec., and on one occasion in the rabbit's heart it reached 2 secs. This is longer than has been observed in the frog's heart, and generally, when the results are compared with those of Burdon Sanderson aud Hermann, it is seen that the mammalian heart is more susceptible to difference of temperature than is that of the frog.

Nothing appears to have been hitherto done to determine the presence of a wave of contraction in the mammalian heart, such as has been shown by Engelmann, Marchand, and Burdon Sanderson, with the help of the rheotome and galvanometer, to occur in the frog's heart. Moreover, the mechanical method has not been employed at all, even in the frog, for the record of such progressive contraction. By the application of two levers applied to the heart at a certain distance from each other, Drs. Waller and Reid obtained some curious results. In the ventricle of the frog's heart the result of other observers mentioned above, who, using the galvanometer, showed a wave of contraction passing from base to apex, was confirmed. In the mammal's heart, however, the results were markedly different; though it must be mentioned that they were not so uniform as in the case of the frog. The contraction of the apex in cats, rabbits, dogs, and sheep generally preceded that of the base, even though all precautions were taken to avoid error. When a contraction was provoked in a quiescent heart by direct stimulation, it was found that the wave of contraction proceeded from the part irritated to the parts beyond, and that both the mammalian and frog's hearts behave alike in this respect. The rapidity of the wave was much greater in warm-blooded than in cold-blooded animals, was greater in large than in small hearts, and progressively decreased after excision of the heart.

The galvanometric experiments upon the frog's heart confirm those made by former observers. Kölliker and Müller have shown that the contraction of the mammalian heart is accompanied, or rather preceded, by an electromotive change. This Drs. Waller and Reid now show to be frequently diphasic, and to persist long after visible contractions have ceased. If the heart be quiescent and be then irritated, it is found that a diphasic variation occurs, which indicates in its direction, first, negativity of the proximal electrode; secondly, negativity of the distal electrode. Local injury, when the heart is inexcitable and apparently dead, develops negativity of the injured to all other parts. This easy production by injury of local negativity caused occasional irregularities in the galvanometric results; sometimes, for instance, stimulation produced merely a simple and not a diphasic variation, probably because a touch near one of the two electrodes had developed permanent negativity of that spot. A diphasic variation indicating negativity starting from the distal electrode was never seen; but an exceptional result was that local excitation might give rise to a single variation, indicating negativity of the distal electrode. This is explained by the supposi-

tion that there exists in such a case a greater excitability of the tissue in the neighborhood of the distal electrode.

The above experiments refer to artificially-excited beats in an otherwise quiescent heart. When the heart was beating spontaneously, the galvanometric readings were not constant. When viewed by the naked eye, the spontaneous contraction of the mammalian heart is apparently simultaneous in all parts. As mentioned above, the proof of the presence of a wave of contraction by the graphic method was not altogether clear; it is now seen that the record of the galvanometer on this point is obscure, and it is presently to be noted that the electrometer gives indications of a contraction occurring almost simultaneously in all parts of the ventricle. These are points which require further research, and upon them Drs. Waller and Reid express themselves cautiously.

The experiments with the capillary electrometer are specially interesting. The movements of the mercury were magnified by a half-inch objective, the image taken 90 centimetres behind the lens, and photographed upon a sensitive surface travelling more or less rapidly. Changes which were not shown by the galvanometer appear clearly with the electrometer. A diphasic variation was frequently shown when the galvanometer showed only a single change of potential. But, in spite of the extreme delicacy of the electrometer used in the way described, the electromotive change accompanying the beat of the ventricle was sometimes seen to be monophasic. This must be assumed to be really the case—not a mere fusion of two phases by reason of imperfection of the instrument. Further, such monophasic variation occurs during the earlier moments after excision, giving place subsequently to a diphasic variation. The natural conclusion to be drawn from this is, that in the very active mammalian heart the ventricles contract with such synchronism of their various parts that the excitatory change is practically simultaneous in all parts, and, as the authors think, postulates the existence of nervous channels of conduction, since such simultaneity is inconsistent with the slow nature of muscular transmission.

In the second paper mentioned, Dr. Waller shows how the electromotive changes can be demonstrated even on the human subject. Electrodes leading from the front and back of the chest, when connected with the capillary electrometer, show distinct electrical variation with each beat of the heart. This might be due to mechanical alteration of contact between the electrodes and the chest-wall, caused by the heart's impulse. To disprove this, the electrodes may be led off from the hands or from one foot and one hand placed in two dishes of salt solutions. Still the variation occurs, though less markedly. The crucial test, however, is that by accurate measurement the electromotive change can be shown to precede the contraction of the ventricle by 0.015 second, when the systole lasts 0.35 second. This time difference corresponds with that obtained by Donders for the rabbit's heart *in situ*.—*British Med. Journal*, May 26, 1888.

Pathology of the Ganglion of the Trunk of the Pneumogastric.

Dr. Alexander Levin, chief of Professor Manassein's Clinic in St. Petersburg, has published in his graduation thesis an interesting series of observations on the pathological changes in the ganglion of the trunk of the pneumogastric

nerve in different diseased conditions. He examined this ganglion in 102 bodies where during life there had been disease of some of the organs receiving their nervous supply from the pneumogastric, including cases of heart disease, pulmonary phthisis, and croupous pneumonia, or where the patient had suffered from some general disease, such as typhoid, scurvy, diphtheria, cholera nostras, hydrophobia, and others. He finds that in typhoid the ganglion is frequently affected by an inflammatory process, there being marked hyperemia, and sometimes extravasation of blood or granular changes in the nerve cells, which leads to their atrophy or breaking down, and to hyperplasia of the connective tissue of the nerve. These morbid changes have as their result, as Dr. Levin believes, typhoid laryngitis and paralysis of the pharynx, cardiac irregularities unconnected with high temperature, the so-called "sudden death of typhoid," spasmodic dysphagia and vomiting, and finally dilatation of the stomach, observed by many authorities in cases of typhoid. In cardiac disease the pneumogastric ganglion is found to be affected by chronic venous stasis, extravasation of blood, thickening of the external tunic of the small vessels and of the walls of the nerve cells, with degenerative changes in these last. This condition of the ganglion may perhaps be connected with special forms of irregularity observed in cardiac cases, in chronic pneumonia, and often existing in aortic aneurism, and also with paralysis of the pharynx and vomiting, observed in some cases of heart disease. In pulmonary phthisis the ganglion of the pneumogastric is found to have undergone degenerative changes of the nerve cells, which are atrophied, shrunken, or eaten away, the stroma being at the same time hyperplasic.—*Lancet*, July 14, 1888.

Contribution to the Study of Erythema.

Dr. Polotebnoff presents in a supplement to the *Monatshefte für prakt. Dermatologie*, 1887 (Supl. II.), of some 200 pages, a complete study of the erythemata. Under the name of erythema we usually designate a redness of the skin, which was in former times not always clearly distinguished from the redness of erysipelas, although Sauvages clearly defined these two forms of dermatitis. Willan was the first to give a classical description of the forms of erythema, which result from troubles of the organism in general, regarding the erythemas as symptoms in relation with the various internal disorders. Willan's works are well-known, and though nearly a century has elapsed since their appearance, the question of erythema has advanced but little, and is still one of the most obscure subjects in dermatology. It is well known that Hebra distinguishes erythema, produced by a passing hyperemia and with a rapid evolution, from multiform exudative erythema, in which the course is much longer, and which can no longer be looked upon as a simple symptom. He consider erythema nodosum as a special disease, distinguished by its form, localization, course, etc., from both hyperemic and multiform erythema.

According to Dr. Polotebnoff this definition of Hebra is arbitrary, for it is not possible to mark a limit between active hyperemia, and inflammatory exudation. The absence of exudation upon a reddened skin does not authorize the exclusion of inflammation. As to erythema nodosum, he says it is only a modification of exudative erythema distinguishable by a deeper seat, and a

greater degree of intensity. Lewin has found other forms of erythema along with erythema nodosum, in twenty-five out of fifty-five cases. In a word, according to Polotebnoff, all erythemas form only one single disease: inflammatory erythema.

The etiology of erythema is still very obscure. Willan's idea that it is only a symptom of internal disease is found also among French writers. Dermatologists to-day admit that women with chlorosis and those badly nourished are often subject to erythema. Chlorosis, so often put forward, cannot be regarded as a direct cause of disease; it is not an independent malady, but is itself brought about by various organic affections (insufficient alimentation, abundant hemorrhages, troubles of the nervous centres). The erythema is then, in such cases, not the result of chlorosis, but a concomitant symptom of the principal disease. Coincidence of erythema with menstruation has been clearly demonstrated. Behrend has described them as menstrual exanthemata, and Kidd as uterine erythemas. Occasionally erythema developes after delivery as well as during pregnancy, and also after operations upon the uterus. Willan first called attention to the connection between erythema and stone in the bladder, irritations of the bladder and urethra, etc. Bès (1872) gives, as a cause of erythema nosodum, the soft chancre, gonorrhea, etc. Lewin found, in forty-six cases of women suffering from exudative erythema, six instances of urethritis, two of excoriation of the orifice of the urethra, and two having both these conditions. All these erythemas are produced in a reflex way, as are also those of dentition and those observed in certain cases of diarrhea, etc. Auspitz, influenced by the theory of angioneurosis, does not attribute any importance to irritation of the urethra. Various authors have pointed out the connection between erythema and renal and hepatic lesions. In these cases the erythema is probably developed as a result of the irritation of the centres which also provoke the other uremic symptoms. Dr. Polotebnoff has observed a papular erythema in a case of icterus, and one of papulo-tubercular erythema in a case of cirrhosis of the liver with ascites.

Uffelmann regards as possible a connection between erythema nodosum and tuberculosis. Rheumatism has been considered as one of the principal causes of erythema. Bazin attributes it especially to arthritism. Besnier is a partisan to this view for certain erythemas. According to Sée the pains of erythema nodosum are entirely different from those of rheumatism. Hardy regards the erythema as the principal disease and the rheumatism as an accessory. Sheby-Buch holds the same opinion. Lewin says that articular rheumatism is met with in only 9 per cent., and muscular rheumatism in 18 per cent. of the cases of erythema. The personal observations of the author have led him to believe that the muscular and articular pains which accompany erythema in the majority of cases do not have a rheumatic character. He is convinced that acute articular rheumatism, considered as an infectious affection, probably general, can produce erythemas. A goodly number of authors have observed the coincidence of erythema nodosum and syphilis, and some authors admit a pyemic and a septicemic erythema. Erasmus Wilson attributes to the vasomotors a predominant *role* in erythema. Samuel admits a paralysis of the vasomotors having, as a consequence, a congestion of the capillaries. Duguet thinks that the pains authorize

us to admit a primitive lesion of the nerve which attacks at the same time the fibres of the vasomotors, as in herpes zoster. Pick makes erythema depend upon an affection of the walls of the vessels and a diminution in their calibre. Lewin considers erythema as an angioneurosis, and admits a complete atony of the vaso-constrictors. This theory has found convinced partisans in Auspitz and Schwimmer.

The second class of the new classification of Auspitz comprises angioneuroses, which are divided into three groups: infectious, toxic, and essential. It is to this last group that all the erythemas of Willan belong. Lewin was the first to consider erythema as an infectious disease. He described two forms: benign and malignant. The first attended with little if any fever and devoid of complications; the malignant having a temperature of 104° F., and attended with severe complications. The infectious character of erythemas is to-day admitted by a certain number of authors, but others reject it. Polotebnoff makes an analysis of all the opinions advanced on this subject during recent years and gives a clear and precise resume of them.

He himself admits the following forms of erythema: 1. Erythema produced by external irritants; the erythema being limited to the region irritated (erythemas of Sauvages and Plenck). 2. Reflex erythemas, which develop: *a.* After external local irritation of the skin, and do not remain limited to the region irritated, but spread over extended surfaces; *b.* After irritation of internal organs. 3. Central erythemas, coming on after an irritation of the nerve centres (erythema of tubercular meningitis). Probably medicinal erythemas will have to be classed in this category, as well as erythemas observed in kidney disease. 4. Infectious erythemas, which are found in all infectious diseases. (Lewin wished to give erythema a place by itself among the infectious diseases).

According to Polotebnoff, all these erythemas (excepting the central and reflex) are announced by general symptoms, at times quite slight. There is always slight elevation of temperature, and the erythema shows itself from the the first to the seventh day of the disease, rarely from the eleventh to the fifteenth. The premonitory period is observed in all erythemas, and not, as some dermatologists say, only in erythema nodosum. The severity and duration of the symptoms do not depend either upon the form or on the extension of the erythema. Erythemas which have an acute course from ten to twenty days, and which do not habitually recur, are the only ones often accompanied by diseases of the other organs. They have almost always a prodromal stage with very pronounced symptoms on the part of the internal organs. With the apparition of the exanthem all the symptoms, or a part of them, may disappear. In certain years 90 per cent. of the erythemas observed by the author have been accompanied by acute catarrh of the stomach. Affections of the mucous membrane of the air passages are occasionally predominant. Erythemas come at times in an epidemic manner, or appear to vary in different years. It is also well-known that they are more frequent at certain seasons and in certain months. The author refers to the well-known epidemic of *erythema acrodynique* at Paris in 1828, and that observed in Siberia and described by Middendorf. Under the name of dengue an epidemic disease has been described which especially appears among the troops. It has a prodromal stage of from one to five days, but in

about half the cases the onset is sudden. A painful enlargement of the articulations comes on with fever, temperature reaching 106° or 108° in the first twenty-four hours. The fever is continuous. In from two to seven days it disappears suddenly, often with a profuse perspiration, diarrhea or epistaxis. The febrile condition ceases for from one to three days, then reappears, but without attaining its original intensity; it then takes on a remittent character, and gradually disappears in two or three days. The exanthem shows itself either as a roseola or as elevated papules, scattered over extensive surfaces as in measles and scarlatina, or is manifest as pomphi, analogous to those of urticaria. This exanthem is more or less complete and may be entirely wanting. Usually it appears upon the face, neck, chest, upper extremities, hands and feet. It is very itchy and terminates in a fine desquamation. In severe cases, the mucous membrane of the mouth, nose and pharynx are equally implicated. Recurrences after two or three weeks are quite frequent. The etiology is completely obscure, but the affection has a certain analogy with recurrent fever. It is not of itself fatal, but an occasional death results from complications.

Nearly all authors admit in erythema nodosum the presence of a hemorrhagic exudation, and even of a hemorrhage into the tissues of the skin and the sub-cutaneous cellular tissue. Kaposi regards it as a serous infiltration of the whole tissues of the skin and sub-cutaneous connective tissue with simultaneous stasis of the capillaries, the nodosity being only a pomphyx of excessive development. Microscopical examination, not only of erythema nodosum, but also of papular erythema, is opposed to this view, and a clinical base is difficult to find. It is impossible to consider the different varieties of erythema as simple local lesions, but we should rather admit a general process of the entire organism. It is only in infectious diseases that we habitually find a prodromal period, and a simultaneous affection of a great many organs and an epidemic form of the disease.

It is very difficult to diagnose the abortive forms of many infectious diseases. In scarlatina we depend upon other symptoms than the rash. In variola, only eight or ten papules are found at times upon the whole body, and the diagnosis is made easy only by finding the source of infection. There is no infectious disease which always comes to its full development, always presents a typical course, which is not complicated at times with an erythema. It seems that erythema is even more often met with in the abortive forms. The various symptoms which accompany erythema depend entirely on the form and degree of development of the infectious diseases of which the erythema is one of the manifestations. The erythemas, then, do not form a special group among the infectious diseases, but represent the least grave phenomenon of the typical and abortive forms of the most diverse infectious diseases.

The clinical forms of erythema are very numerous. Some last months and years. The explanation has yet to be found. The author has observed three cases lasting many years without interruption. Until now the desquamation which follows erythema has received little attention; in some cases it is the most prominent symptom. As to the mode of regression of the nodes of erythema nodosum, although they usually disappear promptly, they may last for months or years; they rarely suppurate. The author has observed suppuration but

once. It is probable in cases in which very marked swellings disappear rapidly, that they depend largely on inflammatory edema and contained a relatively large quantity of embryonic cells, which are re-absorbed. In other cases, the nodosities are formed at the expense of the white corpuscles of the blood, and perhaps also of the red blood corpuscles, and resorption takes place by fatty degeneration. Erythema is always preceded by general troubles, which also show themselves during the course of the eruption. Such is not the case in eczema. The nutrition is never altered in eczema subjects when no organic complication exists. The use of the term "vesicular erythema" is defective, for there is no erythema presenting vesicles alone; nodosities and erythematous spots always accompany them, and the term "polymorphous" is preferable. Acute pemphigus presents exactly the same general symptoms as the infectious erythemas, the only difference is found in the infectious character of the general disease, being more marked than in most infectious erythemas. So far as etiology and clinical symptoms go there is complete identity between these two affections, the only difference is one of morphology. But a difference of form is not sufficient to separate two analogous diseases, any more than a point of identity can fuse them. In most cases of acute pemphigus, various forms of erythema are found alongside the bullæ, the bullæ are then only a more elevated degree of development of the vesicles, just as erythema nodosum presents the more elevated degree of papular erythema.

The author recommends symptomatic treatment for cases of typical erythema, and quinine in cases of frequent recurrence. In vesicular and bullous forms, external and internal anti-phlogistic treatment, hot compresses changed three times daily; Unna's salicylic paste in moist sheets of medium dimension upon the trunk and extremities, hot bran baths, change of air, and rest in the country. The success of treatment in reflex and central erythemas, depends upon the relief of the principal disease (such as Bright's). A symptomatic treatment, however, may secure a noticeable relief, although it may be but temporary. —*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1888.

Clarke's Column.

This column of nerve cells possesses more interest now since Gaskell promulgated his views in regard to its relationship to the nervous system. Gaskell proved the outflow of the fine medullated fibres of the visceral and vascular system to exactly agree in position with the cells of Clarke's column in the spinal cord. The older view of Flechsig is that they are connected with the innervation of the trunk muscles. Lockhart Clarke showed that these cells are connected with the fibres of the cerebellar track. Dr. F. Mott has attempted to throw light on the subject by comparing the spinal cord of a man, a monkey, and a dog. In man the column is a cylindical body situated at the neck of the posterior horn; its shape is ovoid, with the long axis antero-posterior. It was found well marked in all the sections from the eighth dorsal to the second lumbar, inclusive. Above this, up to the sixth dorsal, many transverse sections showed only a fine nerve plexus. Vertical sections showed scattered groups of cells from the sixth up to the first dorsal. No cells could be seen in the cervical enlargement; but in the first to the third cervical a few scattered cells could be seen,

not forming a definite column, as in the lower dorsal region. Cells are not found below the second lumbar, with the exception of a few in the upper sacral, corresponding to Stilling's nucleus. In the monkey the column forms a cylindrical body on each side of the central canal, separated from the posterior column by a considerable interval, across which fibres pass to it. In the dog the situation of the column corresponds to that in the monkey; but it is much better marked in the upper cervical and dorsal regions. A diagram in the *Journal of Anatomy and Physiology*, Vol. xxii, shows very plainly the situation and size of the column in the cords of these three animals. The difference in distribution of the cells may be related, Dr. Mott thinks, to the difference in posture.—*Lancet*, May 26, 1888.

Atypical Dysidrosis.

Dr. Vidal (*Journal de Médecine*) showed a patient at the Hospital St. Louis who presented an extensive raising up of the epidermis of the sole of the foot, due to confluent vesicles, which had produced veritable bullæ as large as an egg at several different points. The diagnosis would have been difficult if the palms had not shown the same elementary lesions (small vesicles). The vesicles and bullæ were caused by the extremely abundant perspiration to which the patient was subject.

Treatment consisted in the administration of sage tea, with the object of diminishing the sweat, and the local use of vinegar lotions—two spoonfuls of vinegar to the glass of water.—*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1888.

The Circle of Willis.

Dr. Windle (*Journal of Anatomy and Physiology*, Jan., 1888) found in 76 out of 200 cases the arrangement of the arteries at the base of the brain forming the circle of Willis strictly that described in the text-books as normal. In 43 of the others the only deviation was a more or less marked disproportion between the posterior communicating arteries of the two sides; so, if this be disregarded, the normal number and arrangement was present in 119 out of 200 cases. The anterior communicating was normal in 159 cases. Its usual variation was duplicity, which was complete in 14 cases, incomplete in 6. In 1 case three were found. In 8 cases it was absent. Twice it was associated with union of the anterior cerebrals. In 9 cases it formed the origin of a third anterior cerebral artery, called the arteria cerebralis anterior media, which passed forward in the longitudinal fissure for two-thirds of the length of the corpus callosum, and divided into branches supplying the opposed surfaces of the hemispheres. The anterior cerebral arteries were normal in 181 cases. In 2 cases the right artery was absent; in one its place was supplied to a certain extent by twigs from the right middle cerebral; in the other by a small branch which sprang from the right internal carotid. In 1 case the right vessel was double the size of the left; in another the two anterior cerebrals united to form a single trunk, and in 8 they united for a short distance, six times replacing and twice accompanying the anterior communicating. The posterior cerebral arteries were normal in 173 cases. The most common variety was a derivation of one or both from the internal carotid, instead of the basilar. This occurred eleven times on the right side,

nine on the left, and four on both sides. There were two posterior cerebral arteries on the same side in three cases, once on the right, twice on the left. In each the smaller was derived from the basilar, the larger from the internal carotid. In 1 case a twig from the posterior cerebral divided the third nerve into two portions, which afterward reunited. Aside from disparity in size, the posterior communicating arteries were normal in 175 cases. Both were absent in 3 cases, the right in 9, the left in 13. In the majority of these cases there was a slight anastomosis in the interpeduncular space between twigs from the basilar and the internal carotid. In 7 cases both arteries were very small, in 28 the right was much larger than the left, in 15 the left was larger than the right. These variations of the posterior communicating are particularized: 1. Both arteries springing from the internal carotid, in the position normally occupied by the posterior communicating, and passing to the under surface of the temporo-sphenoidal lobe, where a few twigs anastomosed with twigs from the posterior cerebral. 2. The left artery similar to the above; the right normal in position, but small. 3. No artery on the left side. 4. The left artery a mere thread. 5. The left artery commenced at the carotid as a trunk of normal size, but gave off numerous branches and was reduced to a thread before it inosculated with the posterior cerebral. 6. The artery which represented the left posterior communicating, which was absent, passed backward beside the posterior cerebral, shared its distribution and slightly anastomosed with it.

It may be noticed that when one of the posterior communicating arteries was smaller than the other, or absent, it was usually the left side which suffered. Hence it may be inferred that in these cases the supply of blood to the left side of the brain was less complete than that to the right. If this is true, it negatives the theory that right-handedness is due to a more complete vascular supply of the left half of the brain. The same fact may in some cases explain the lodgment of emboli in the left middle cerebral arteries rather than in the right.

A vessel of unknown origin, as not examined at the time of the removal of the brain from the cranium, ran along the right side of the pons to the right crus, along which it coursed, crossed to the right optic tract, and terminated in the right Sylvian fissure by inosculation with the middle cerebral artery. It communicated with the right superior cerebellar artery, and, by a branch running across the middle of the crus, with a branch from the end of the basilar, which probably represented the posterior communicating, which otherwise was wanting. Before turning into the Sylvian fissure it gave off a branch which passed in front of the optic commissure and terminated in the anterior fissure. The right posterior cerebral arose from the internal carotid.—*N. Y. Medical Journal*, August 4, 1888.

Gaskell's Researches on the Spinal and Cranial Nerves.

The most able judges will pronounce Dr. Gaskell's theories to be bold but reasonable, wide but well supported. His facts cannot be questioned, and his explanations cannot be substituted by any better hypotheses. In his lecture, recently delivered before the Royal Medical and Chirurgical Society, on his receiving the Marshall Hall prize, Dr. Gaskell gave an elaborate and lucid historical sketch of the rise and progress of his researches on the relations between

the function, structure, origin and distribution of the nerve fibres which compose the spinal and cranial nerves. The place of birth of these remarkable investigations was the vagus nerve of the lowly frog. In this nerve it was inferred, as the result of certain experiments, that there existed two kinds of nerve fibres, having very opposite functions and very different histological structures. Stimulation of the one caused, or tended to cause, a slowing of the heart's rhythm and a weakening of its contractions; whilst stimulation of the other increased the force and the frequency of the cardiac contractions.

In the paper published in the *Phil. Trans.*, 1882, part 3, Dr. Gaskell suggested that the vagus is the trophic nerve of both the muscular tissue and the motor ganglia, meaning thereby that it increases the activity of the various formative processes going on in both these kinds of tissue, and produces all its effects by virtue of this quality. This statement was made after a study of the heart of a frog and toad. Subsequent investigations on the hearts of tortoises threw a new light upon the cause of the sequence of the ventricular upon the auricular beat. Other experiments render it probable that the action of the vagus on warm-blooded is similar to its action on the cold-blooded animal. The action of the vagus upon the muscular tissue of the heart is characterized by two different sets of effects, and the one increasing the contractile force is exerted through the mediation of the fibres derived from the sympathetic plexus, but going to the heart along with the vagus, fibres which are characterized by being non-medullated and very fine, whereas the vagal inhibitory fibres are large and medullated. A distinction is thus drawn and contrasted by great differences between what may be called anabolic (vagal) and catabolic (accelerating). The first named leads to the construction of explosive material, to conservation; the second to destructive metabolism, to breaking down of the explosive substance or protoplasm. The vagus increases the activity of the formative process going on in the muscle, and it will produce, therefore, augmentation of the force of the contractions alone, a diminution followed by augmentation, or even standstill, followed by augmentation, according as that activity is more or less equally distributed over the different stages of the process, the ultimate end of which is the formation of the final contractile substance. In the paper published in the *Journal of Physiology*, Vol. iv, the innervation of the heart is considered in special reference to the heart of the tortoise, and in relation to the subject of the lecture, the most important conclusion was drawn that the vagus of the tortoise was like that of the frog, in possessing depressor and augmentor functions. In the crocodile, suggested as an animal for study by Sir Joseph Fayrer, the same conclusion was found to hold good. Following the historical development, we come next to the important communications published in the "Transactions of the International Congress," held in Copenhagen in 1884, and this treated of inhibitory actions and inhibitory nerves in general. The following conclusions were arrived at by Dr. Gaskell: That direct stimulation causes inhibition, chiefly because the terminations of the inhibitory nerves are stimulated. Inhibitory nerves have an existence separate from motor or excitor nerves. The process of inhibition is not destructive or neutral, but constructive in its nature.

In the *Journal of Physiology*, Vol. vii, we are led still further into the special

subject which occupied the Marshall Hall lecturer. The structure and distribution of the nerves which innervate the visceral and vascular systems receive attention. We are told that the white rami communicantes are formed by an outflow of medullated nerves from both anterior and posterior roots of the spinal nerves between the second thoracic and second lumbar, inclusive; which medullated nerves pass not only into their metameric sympathetic (lateral) ganglia, but also form three main streams upwards into the cervical ganglia, downwards into the lumbar and sacral ganglia, and outwards into the collateral ganglia. The white rami communicantes alone constitute the rami viscerales of the physiologist. The outflow of visceral nerves from the central nervous system into the so-called sympathetic system takes place by these means alone, and is therefore limited in the thoracic region to that part of the spinal cord which is included between the origins of the second lumbar and second thoracic nerves, inclusive. It was next demonstrated that the outflow of visceral nerves could be recognized not merely by the presence of the white rami communicantes, but also by the smallness of the calibre of the visceral nerve fibres. The distribution of visceral nerves occurs therefore in definite sacral, thoracic and cervico-cranial regions; from these regions they pass out into the ganglia of the visceral system; from the sacral region they pass out in a single stream to the ganglia of the collateral chain; from the thoracic region they pass out in a double stream, one to the ganglia of the lateral chain, the other to the ganglia of the collateral chain; from the upper cervical region they pass out in a single stream to the ganglia on the main stems of the vagus and glosso-pharyngeal nerves. Later on it was found that vaso-motor nerves for all parts of the body can be traced as bundles of the finest medullated fibres in the anterior roots of all the spinal nerves between the second thoracic and second lumbar, inclusive, along the corresponding ramus visceralis to the ganglia of the lateral chain (main sympathetic chain), where they become non-medullated, and are thence distributed to their destination either directly or after communication with other ganglia. The next important conclusion is to the effect that the viscero-motor nerves, upon which the peristaltic contraction of the thoracic portion of the esophagus, stomach and intestines depends, leave the central nervous system in the outflow (of fine medullated visceral nerves) which occurs in the upper part of the cervical region, and pass by way of the rami viscerales of the accessory and vagus nerves to the ganglion trunci vagi, where they become non-medullated. The cells of Clarke's column in the spinal cord are confined to those regions of the central nervous system which give origin to the rami viscerales. Evidence has been adduced to show that these cells are the real source of the visceral nerves. Further, though these fibres pass out from the cord as fine medullated structures, they lose their medullary sheath after passing through the sympathetic ganglia. But the conclusions of Dr. Gaskell are so suggestive and so important that we must reserve their further consideration.—*Lancet*, June 2, 1888.

II. MATERIA MEDICA AND THERAPEUTICS.

Acetphenetidine—Phenacetine.

This substance, known under both names, was brought under the notice of the Berlin Medical Union on July 2 by Dr. F. Müller. He remarked at the commencement of his address that no less than nine new investigations had been made into it during the last few weeks. He said it very much resembled antifebrin in its constitution and in its antipyretic action. In typhoid fever, erysipelas, puerperal fever, and tuberculosis, from 7½ to 12 grains of phenacetine, given at once, reduced the temperature to normal; as much as 15 grains was rarely necessary. The fall of temperature took place in from one to four hours, and was accompanied with sweating. The reduction lasted from three to five hours, when the temperature again rose, but without a chill or rigor; the latter indeed was never observed. A sort of artificial remittent fever could be produced at will, but the changes in temperature were not agreeable to the patients, many of whom preferred their fevers to the "sweating powders" as they called them. It was, therefore, best to keep the patients in apyretic condition; but Dr. Müller said this could not be done, as a tolerance of the drug was set up by its continued administration. To compass apyrexia, therefore, he said, steadily increased doses had to be given, and when the dose became high cyanosis was observed in two cases, one a case of erysipelas of the face, and one a case of tuberculosis. The blood was examined in both cases, and methæmoglobin detected, which disappeared, however, after the drug had been omitted a couple of days. No influence of the drug over the general course of the disease could be discovered. In erysipelas the disease continued to spread even during the fever-free periods. Phenacetine did no more and no less than the other antipyretics, and it had the advantage over them that fewer attendant symptoms were produced by it. Being tasteless, vomiting was rare, and noises in the ears and cutaneous eruptions were never observed. Cyanosis and methæmoglobinuria were never caused by less than 75 grains daily. The remedy had also the property of relieving nerve pain, but whilst 7½ to 12 grains reduced temperature, it often required a dose of 30 to 45 grains to relieve headache from uterine or ovarian mischief. In organic affections, uræmia, the girdle pain of tabetics and tabetic crises, it did no good, and the same is true of three cases of chorea. According to present experiences, he said, it would retain a permanent place in the treatment of headache, and especially of migraine. It had likewise a specific action in acute articular rheumatism. Out of 23 cases treated, the fever ceased at once in 13, and in five days all pain and swelling of the joints. In four cases improvement took place, but not a cure, and in six the condition was unchanged. Two of the rheumatic cases treated were of gonorrhœal origin. In several cases the patients were quite free from pain and fever in from three to four days, but some swelling of joints

and stiffness then remained. These remnants were disposed of for good by a single dose of salicylic acid. Phenacetine did not prevent the occurrence of endocarditis or pericarditis any more than other remedies; several relapses took place after its employment, but they were not very frequent. Dr. Müller concluded that phenacetine occupied the same position as antipyrine and antifebrine, and it had the advantage of not being so dangerous as the latter.

It is almost insoluble in cold water, not quite so much so in hot, is not changed by the acid gastric juice, nor by the alkaline pancreatic ferment. One is led to conclude, therefore, that it is completely absorbed and unchanged. The urine afforded a series of interesting appearances. Unchanged phenacetine could not be found in the urine; the acetyl must be decomposed in the organism, for the easily soluble phenetidine appeared in the urine. Aniline could not be found in the system after its administration. It possessed little if any antiseptic properties, and this confirmed the statement that no parallel existed between the antiseptic and the antipyretic actions of any drug.

Dr. P. Guttmann, in discussing Dr. Müller's communication, agreed on the whole with him. It was preferable, he said, as an antipyretic to antipyrine, as a smaller dose sufficed, and that had very few unpleasant accompaniments. Dr. Michaelis had tried it in three cases of whooping-cough in which antipyrine had failed, and with the best results. He recommended a further trial in that direction.—*Medical Press and Circular*, July 25, 1888.

Therapeutics of Infectious or Septic Bronchitis.

The Paris correspondent of the *Pittsburgh Med. Review*, July, 1888, says that Dr. Ferrand recommends the following formulæ in the treatment of infectious or septic bronchitis:

In *ulcerous bronchitis consecutive to chronic bronchitis*, an infusion of angelica is given. One of the following pills is administered three times a day:

Powdered squill,	
Gum ammoniac	āā gr. ½
Essence of eucalyptus	1 drop.

If this treatment proves inefficient, one dessertspoonful of the following potion (Pecholier's) is administered every two or three hours:

Creasote of beechwood	3 drops.
Essence of lemon	2 "
Pure water	120 "
Orange flower syrup	30 "

This may be substituted by from 1 to 5 lozenges, prepared with cod liver oil and creasote.

Sulphurous inhalations, introduced directly by the mouth or indirectly by injections, may be employed with advantage. A liqueur glassful of cinchona wine, pure or mixed with one-fourth or one-third of glycerine, is administered at the beginning of each meal. An analeptic and tonic diet is prescribed. Alcohol or an aromatic infusion, such as juniper, may be taken after meals.

For *gangrenous bronchitis, or gangrene of the lung capable of being cured*, an infusion of fennel, sweetened with syrup of mentha, is taken. Three times a day a tablespoonful of the following potion is administered:

Infusion of cinchona	8 fluid ounces.
Syrup of orange peel	1½ "
Essence of eucalyptus	5 drops.
Antiseptic tincture	5 fluid drachms.

The patient should inhale iodoform powder from a bottle, morning and evening. Before going to sleep at night, his room is impregnated with thymol. A Morton's pill is administered with a little cinchona wine at the beginning of meals. A diet similar to the one above described is adopted.

In *pseudo-membranous bronchitis, in diphtheria which has a tendency to become generalized*, the patient should take the following purgative powder every second day before breakfast, excepting in the case of diarrhœa:

Calomel	gr. 1⅔
Jalap powder	gr. 4½

An infusion of anise-seed is administered. Every hour the patient should take one tablespoonful of the following potion:

Infusion of maidenhair	3 fluid ozs.
Tolu syrup	1½ oz.
Chlorate of potash	gr. lxxv.
Medicinal lime water	5 fluid dr.
Antiseptic tincture	6½ "
Acetate of ammonia	gr. lxxv.

A granule of eucalyptol is administered three times a day.

The patient's room is constantly impregnated with atomization of a saponine and creasote emollient, or with a creasote or carbolic acid solution. Drinks which have a stimulating general action and a softening topic action are given; milk with coffee, rum or other alcoholic liquors is administered. A diet consisting of eupeptics, and malt, elixir of pepsine and cinchona wine, extracts of meat in the form of peptone, is prescribed.

In septic bronchitis in pyæmia, an infusion of reduced gray cinchona, sweetened with punch, is given. Dry cupping is applied twenty times every one or two days, at the base of the chest.

A tablespoonful of the following potion is administered five times a day:

Infusion of arnica	3 fluid oz.
Lemon syrup	1½ " "
Glycerine	6½ " dr.
Carbolic acid	♏ xv.
Mint water	5 fluid dr.

A purgative with 1½ grains of powdered calomel should be taken every two or three days before breakfast. Every night two drops of tincture of aconite root, and ten drops of Rousseau's laudanum in hot punch are administered. Fumigations with eucalyptus infusion are made. A tonic diet, with coffee and rich wines, is prescribed.

Atropine and Hyoscyamine.

Atropine and hyoscyamine possess the same chemical composition but differ in their melting points, the salts which they form with gold, and their specific rotatory powers. It was noticed long ago that sometimes much atropine and

but little hyoscyamine, and, *vice versa*, much hyoscyamine and little atropine, is obtained from belladonna root, even when the same sample was treated in the same way. Dr. Wills devoted some attention to this curious fact at the request of the Schering Chemical Factory. The first fact which he determined was that when hyoscyamine is heated to 228.2° F., that is, to a temperature slightly above its melting point, it changes into atropine. He found further that when a few drops of alkali are added to a solution of hyoscyamine, which possesses strong rotatory powers, in a few hours the rotatory power is lost and the solution no longer contains hyoscyamine, but atropine. By treatment with alkali, the whole of the hyoscyamine can always be converted into atropine. Dr. Wills is inclined to believe that similar relations to the above exist in the case of quinine and cinchonine.—*Medical Press and Circular*, July 28, 1888.

The Hypodermic Injection of Antiseptic Substances in Pulmonary Phthisis.

Drs. A. Filleau and Leon Petit, in a communication in the *Bulletin de la Phtisie Pulmonaire*, No. 4, May, 1888, record afresh the benefits which they have obtained from the subcutaneous injection of carbolic acid in pulmonary phthisis. They make use of solutions of two strengths, viz.:—(*a*), a 1 per cent. solution of absolute phenol in distilled water; and (*b*), a 2 per cent. solution of absolute phenol in distilled water. If the phenol be pure, no accident need be feared, provided the injections be made slowly and the solution gently warmed. The dosage varies from three fluid drachms of either solution per week to three fluid drachms, four fluid drachms, and even seven fluid drachms per day. No accident is recorded, and evidence of intoxication, except in slight degree and slowly produced, has not been obtained. The first indication of an overdose is frontal headache. When the manifestations of scrofula are present, the authors recommend the following:—

℞	Iodi	12 parts.
	Potass. iodidi	3 "
	Phenol. absol	10 "
	Aq. destillat	1000 "

Of this solution the dose is the same as of the other two. The authors further suggest formulæ similar to those of Dr. Meunier, whereby phenol may be injected in more bland solution.—*Edinburgh Med. Journal*, August, 1888.

Creoline as an Internal Medicine.

Dr. A. Hiller, Privat Docent in Breslau, publishes some remarks on this subject in the *Deutsche med. Wochenschrift*, July 5, 1888. The antiseptic properties and comparative innocuousness of creoline, as used externally, have been made known by Fröhner and E. v. Esmarch, and their conclusions are also confirmed by Dr. Hiller. But creoline is of the greatest use in various diseases of the stomach and intestines. Its anti-zymotic influence comes out most clearly when employed against the numerous processes of fermentation and decomposition which accompany most, if not all, such diseases. "Its freedom from poisonous effects, and its perfectly non-irritant effects, make it an ideal antiseptic for the above group of diseases." Dr. Hiller asserts that creoline, given in strong gelatine capsules, in doses of between three and fifteen grains three times a day,

promptly and certainly relieves meteorism from whatever cause, whether constriction, typhlitis, catarrh, atony, or ileotyphus, and hopes thus to prevent perforation in the latter case. It was found equally efficient in simple flatulence, gastric dilatation, acute and chronic gastric catarrh, and diarrhœa. Given in a case of tænia and one of oxyuris, its action was prompt and efficient as an anti-parasitic. But creoline appears unfitted for children, owing to their inability to swallow capsules. It may also be used to irrigate the rectum in carcinoma cases; used thus in solutions of 1 in 500 it acts like a charm in purulent cystitis (Jessner, *ibid.*, 1881). This glowing account by Dr. Hiller ought to call attention to this substance.—*British Med. Journal*, July 21, 1888.

Arsenic Poisoning.

Dr. Brouardel, Professor of Medical Jurisprudence at the Paris Faculty of Medicine, was lately consulted by the Tribunal Court on the question as to whether or not an infant of twelve months could have been poisoned by the milk of its mother in case the latter had absorbed arsenic. The following are the circumstances which caused this inquiry. A man, having been accused of forgery with the intention of appropriating to himself the fortune of his wife and that of his mother-in-law, was at the same time suspected of trying to poison his wife, and having thus caused the death of his child, which the mother was suckling at that time. The child died with symptoms of cholera morbus a few days after the mother had herself presented analogous symptoms, such as diarrhœa, vomiting, etc. As it was during the hot season, these accidents did not excite attention. It was only after the second choleriform attack, which occurred in November last, at the same time in the mother and grandmother of the child, that the husband was suspected. On the other hand, the wife declared that she had found in her husband's pocket a white powder, which was nothing else than arsenious acid. To resolve the question, Dr. Brouardel caused the coffin containing the body of the child, which had been buried about six months, to be brought to Paris. This body was completely transformed into cadaveric fat, and it was impossible to isolate the viscera from the other parts, so that it was submitted to analysis in its entirety. It weighed about two and a half kilogrammes, and contained one-twelfth grain of arsenic, which did not proceed from the linen enveloping the corpse, or from the earth surrounding the coffin. It was necessary in the second place, to know whether arsenic was eliminated by the milk. M. Gabriel Pouchet, an eminent biologist, has performed certain experiments in this direction, which were very conclusive. He caused a certain number of wet-nurses, who were patients at the St. Louis Hospital, who were affected with skin diseases, to take a certain quantity of Fowler's solution (from two to twelve drops per day), and he was able to ascertain that under these conditions the milk of these nurses always contained a relatively considerable quantity of arsenic; thus the milk of one nurse who took in six days one-eighth grain of arsenic contained one-sixtieth grain of that substance to three fluid ounces of milk. It must be added that with these doses the nurses and their infants did not appear to be affected by any accidents. But this does not prove that this would have been the case if the arsenic had been given at once in a single dose. In order to clear up this last point, recourse was had to experiments

on female animals. This last series of experiments did not give conclusive results, because the animals presented a very variable susceptibility to arsenic, and the experimentor found it impossible to come to any conclusion concerning these experiments as compared with those performed on human beings. It is, however, evident, from these researches, that the lactic secretion is a means of elimination by predilection for arsenic, and that it is prudent not to administer this agent to suckling mothers. In the particular case under notice, in responding to the *Juge d'Instruction*, Dr. Brouardel stated that the body of the infant contained a sufficient quantity of arsenic to cause the death of a child of one year, and that this arsenic may possibly have had for vehicle the milk of the mother. This qualified conclusion did not seem to affect the defence or the accusation, and the husband was condemned to twenty years' hard labor.—*Lancet*, June 30, 1888.

Menthol and Saffrol in the Treatment of Headaches, Neuralgias and Other Painful Affections.

Dr. C. L. Dana, of New York, in a paper read at a meeting of the Practitioners' Society of New York, May 18, 1888 (*Therapeutic Gazette*, July, 1888), says that menthol has been used externally as an anodyne for thousands of years by the Chinese and Japanese. The oil of peppermint has been used for the same purpose at least since the time of Pliny the Younger. This author also recommended its internal use in digestive troubles and as a stomachic.

Delioux de Savignac recommended the oil as a local application, and also used it hypodermically (locally) for neuralgic and myalgic pains. He also employed it locally in bronchial and laryngeal troubles.

Dr. A. Schmitz has prescribed menthol internally, in doses of gr. ii to iv, for digestive and bronchial disorders. Rosenberg and Beehag have used it in phthisis, Cutter in influenza, and Salisbury in diphtheria, the latter giving $\frac{9}{10}$ of a gr. every hour. (Quoted by Langaard, *loc. cit.*) Recently the oil or the camphor has been used by a number of persons in the local treatment of nasal, pharyngeal or laryngeal, and bronchial affections.

So far as Dr. Dana knows, Dr. William M. McLaury, of New York, was the first to use menthol internally in neuralgia. About a year ago he suggested to Dr. Dana that it gave efficient relief in migraine. Since then the latter has used it in many and various disorders, and has come to look upon it as a valuable addition to our pharmacopœia.

Dr. Dana states the chemistry of menthol as follows: "Menthol ($C_{10}H_{20}O$) is classed as a camphor, though it does not strictly belong to this group. All the essential oils have probably an oxidized and a non-oxidized hydrocarbon radical. Menthol is the oxidized radical of oil of peppermint. It is extracted from this oil by cold and pressure. It is not a salicylate, like the oil of wintergreen and oil of birch; nor of the nature of a phenol, like thymol; nor has it any analogies to the anodyne derivatives of aniline. It is soluble in alcohol, ether and chloroform, but not in water. Hot water, however, holds it in fine suspension for a time."

As to its physiological properties, he says: "Locally it is at first irritant; then it produces a sensation of coldness and some analgesia, but not very much

anæsthesia (Savignac). Schmitz believes that it acts as an anæsthetic only by direct contact with and paralysis of the peripheral sensory nerves. He found that it stimulated the salivary secretory nerves, and it probably does the same to the gastric nerves. It has a specific stimulant action on the thermic nerves (Goldscheider). Taken internally, in doses of gr. v to gr. xx, I have found it to cause a sensation of warmth, lasting from a half to two hours. It strengthens, but does not much quicken the heart-beat, and raises arterial tension. Savignac also found that the drug stimulated the heart, but did not quicken it. In some cases it causes profuse perspiration and increased flow of urine, the acidity of which, I believe it, like thymol, increases."

"It is eliminated in a modified form in part by the kidneys (Savignac), and probably in part by the lungs. It rarely or never causes nausea or gastric irritation in doses of even ʒi to ʒiss daily, unless its use be long continued.

"Menthol is a powerful antiseptic, being about twice as strong as carbolic acid (MacDonald). Since it can be safely given in doses twenty times as large, it is for purposes of internal administration superior, except that it is not soluble in water."

With regard to its medicinal action, he says: "I have used menthol now for nearly a year, and in a large number of cases. At first I kept no notes, and consequently I cannot place all my experience on record. The following are recorded cases:

	CASES.	
Migraine	5	Relieved in four cases.
Anæmic headache	5	Relief.
Congestive headache	2	Temporary relief.
Sciatica	4	Temporary benefit in two cases.
Multiple neuritis	2	Very marked benefit in one case.
Neurasthenic headache	3	Relief decided.
Locomotor ataxia	2	Relief in one case.
Intercostal neuralgia	1	Relief.
Acute rheumatism	6	Benefit temporary in two cases; no benefit in four cases.
Hectic of phthisis	1	Stomach irritated.
	31	

From his experience, he concludes that menthol, taken internally, in doses of gr. v to gr. xx, is a heart stimulant and nerve anodyne. It is especially useful in cases of migraine, supraorbital neuralgia, and of neurasthenic, gastric and anæmic headaches. It is helpful in some sciaticas. It is of no value in acute rheumatism, though it seems to have some antipyretic power. It is not a specific or uniformly certain reliever of pain, but says confidently that it has not disapppointed him more than antifebrine or antipyrine.

Practically, he regards it as an efficient and cheap substitute, in many cases, for antipyrine, and acting especially well in weak and anæmic persons, to whom, perhaps, antipyrine would not be a safe drug. Of its value in diphtheria and bronchial affections he does not speak, but Dr. McLaury says that he has found it very useful here.

It is best given, he says, in the form of a twenty-five per cent. alcoholic solution dose, ♏ x to fʒss, in a wineglass of hot water. Or, it may be given in the form of capsules.

He suggests the following formulæ:

℞ Spirits rectificat.....f℥ j
Menthol (cryst.).....ʒ ij
Glycerini,
Syr.....āā..f℥ j
M. Sig.—One drachm dose in hot water.

℞ Menthol.....ʒ j
Sacchar. lact.....gr. xij
M. Div. in capsulas No. xii.
Sig.—Dose, one to two capsules.

It may be combined with antipyrine, or better, perhaps, with antifebrine.—*e. g.:*

℞ Menthol,
Antifebrine.....āā..ʒ j
Sacchar. lact.....q. s.
M. Div. in capsulas No. xxiv.
Sig.—Dose, two capsules.

Saffrol ($C_{10}H_{10}O_2$), he says, is the camphor of the oil of sassafras. It is liquid at ordinary temperatures. It is a substance with the odor and taste of the oil of sassafras itself. It is not nearly so pungent or irritant locally as menthol, and for this reason it may be found to be a better drug. Oil of sassafras has been used locally and internally in neuralgias. Dr. Dana says he gave it internally in doses of ♏v several years ago, but with not much success. Recently, however, he has employed the camphor—saffrol—in cases of myalgia, sciatica and headache with apparently very good results.

The dose he used has been ♏xx, but this he says may be increased. There is no doubt that very useful anodyne properties exist in the so-called camphors of the essential oils, and he says perhaps some are better than those he has used.

Therapeutics of Small Doses.

Dr. Vesta M. W. Swarts, in a paper read before the Indiana State Medical Society, June, 1888, says: Lionel S. Beale tells us of being called to visit a woman who was dying of cholera, and whose attending physician—a homœopath—believed, or professed to believe, that his patient had been taking doses directed by him, and containing one-decillionth of a grain of opium. While I fully agree with the learned teacher of pathological anatomy, in his added criticism, and believe that the one-decillionth of a grain is beyond the ultimate divisibility of matter, and that if it were possible to administer so small a portion it could be of no advantage whatever in the treatment of that disease, I as certainly disagree with those members of the medical profession who utterly deny the efficacy of minute drug action. The motto "large doses or none," is not a safe guide in therapeusis; and the seeming success of the men of little pills and weak dilutions is not accounted for always by the faith of the patient, nor yet by nature's kindness in curing, that the doctor may collect a fee. A fact in medicine is paramount to any preconceived opinion, and when once established becomes a part of the science.

I expect in this paper to present a few truths—facts, that I deem thus worthy of scientific recognition; and to this end will endeavor to show that minute doses are really obtainable for a large class of drugs, and that such small doses can and do influence the human organism in a manner easily recognized and rendered available in the treatment of disease. After which I will discuss briefly a few principles involved in their therapeutic application.

Minute doses are obtainable. Matter is endowed with great divisibility, and means usually exist to effect its separation into small particles. Water is often quite sufficient for this purpose, and the less soluble the substance the smaller are the parts made by the separation thus caused.

One minim of a saturated solution of iodine contains only one seven-thousandth of a grain of that element, and to a single minim of that solution may be added seventy drops of water, each one of which, after admixture, will contain enough iodine to respond to the starch-paste test in such volume as to appear blue to the unaided eye.

Extremely small particles of odoriferous substances are recognized by the sense of smell; and as an example of minute taste detection, we have only to remember that strychnia will impart a decidedly bitter taste to twenty thousand times its weight of water.

I would here apologize for naming even these few of the many examples of the divisibility of medicinal agents by various means, as they are so well known to all, were it not that only a few days since I heard a prominent physician say that "none but a quack or a fool will pretend that the giving of so small a dose as the one ten-thousandth of a grain is possible." If it can also be shown that very small doses are of value in the treatment of disease, it ill becomes the man of science to ridicule them, notwithstanding that in the past they have kept company with false theories.

Nature is constantly giving us from her laboratory substances representing minute, and even minute combined dosage. Each grain of opium contains no less than eleven known alkaloids, each one of which is complex in its chemical structure, together with various acids, gums, volatile oils, etc., which may or may not possess medicinal properties. The chemist never discards any substance because it holds a combination of minute radicals within the molecule, and the physician can ill afford to be less wise than he.

Man is in no sense an exception to the general law, and small forces affect him as certainly as he exists. Study, if you please, the sense of sight. Rays of light composed of waves, shorter than heat waves—so short as to baffle the skill of the microscopist in their detection—falling upon the retina may so impress a part of it, the fovea centralis, a spot not larger than the head of a small pin, in such a manner that nerve elements (so delicate that thirteen hundred of them occupy that small space), may receive, and by nerve conduction convey, the impression of an image of the brain. May we not as well infer that a very small portion of a medicinal agent, upon coming in contact with the nerve cells of a center, may so affect the mechanism of that center as to be of value as a remedy? The influence of a magnet in polarizing a solid body, whereby each molecule within that body changes places with its fellow, is a familiar example of the potency of small forces; and it is likely no more necessary that a drug should be

in actual contact with all the nerve cells of a center, in order that its effect be transmitted to the mechanism controlled by that center, than it is that a magnet should actually touch every molecule of a solid body to influence and polarize it. If the explosion of a single cell takes place in direct consequence of the action of any drug, the relation of contiguous cells may be so changed thereby that general molecular action will supervene. From a practical knowledge we are led to believe that explosion of cells and molecular changes within the body are often better influenced by small than by large forces. A flood of light obscures the vision, and may even permanently destroy the sight; a less illumination serves a better purpose.

The clinical student knows full well that for a certain class of drugs very small doses are not inert, although non-toxic. One or two drops of a one per cent. solution of quinia certainly may affect an organism which responds so readily to the same amount of prussic acid. True, no one could reasonably expect any anti-malarial effect from so small a dose of that alkaloid; the antidotal value of any drug entirely depends upon the chemical relation existing between the volume of the poison and the remedy used, or between the physiological actions of each. There is, however, clinical evidence to show that one-fiftieth of a grain of sulphate of quinia, repeated every ten or fifteen minutes during the entire day, and for several days together, has cured obstinate cases of tinnitus aurium.

H. C. Wood tells us that cod-liver oil owes its value to its peculiar combination, and it is a combination of twenty-five known substances—many of which exist in a state of minute subdivision and in exceeding small amount. Iodine enters into it in the small ratio of one part to two thousand, and it contains only traces of other medicinal substances. I am aware that many practitioners believe that these remedies are not contained in the oil in sufficient amount to be of any value, and hence refuse to prescribe it, substituting therefor cream or other fatty foods. The fact remains, however, as attested by a long clinical experience, that cod-liver oil, when given in properly selected cases, improves nutrition as no other known food or single drug can do. Mineral waters are rendered more valuable by the mere traces of the various medicinal substances which they contain.

Tincture of aconite-root, in repeated tenth drop doses, will tone up a weakened heart in many instances better than preparations of digitalis or other well-known tonics; and the action of jaborandi in checking perspiration, when given in a similar manner, is now well known to the profession.

I consider it unnecessary to cite other facts in order to prove what, in a moment's reflection, you can not fail to admit, namely, that small doses are obtainable, and often of great value in the treatment of disease.

Of the general principles governing the therapeutics of small doses I will say, first, that there is no inverse proportion in medicine. The effect is always a positive result of the drug absorbed, and corresponds exactly to the size and frequency of repeated doses, except as modified by other coexisting conditions. The theories of Hahnemann were all false, and are now abandoned by his pretended followers. In their stead I will present four propositions, which, defective as they no doubt are, will, I trust, prove to be correct in principle, and

the starting point for a better elucidation. In giving them I shall use the term *minimum dose*, as meaning the smallest amount that can be shown to produce any effect upon the human system, either in a diseased condition or in a state of health.

1. The so-called primary action of any drug is in fact the effect of the absorption of a minimum dose. In proof of this we have only to consider that the absorption of a single large dose is more rapid than its elimination, so that its action is in a measure cumulative. The first effect (primary action) is that of the smallest amount absorbed, and that generally known as its physiological action is the effect of a much larger dose. As a matter of fact this minimum dose action can be shown to exist for most drugs, although when very large doses are taken the period of primary action may be so short as to escape observation. Our therapeutic text-books fail to notice it at all in many cases, and a more accurate and extended study must be made in order to determine exactly what that action is. Thus, but few authors mention the temporary contraction of pupil which precedes the mydriasis of belladonna, or the dry hot flushing of the skin which antedates the sweating stage produced by a full dose of jaborandi.

In hypodermatic medication the full effect is reached so quickly that the primary action is seldom observed. Quite different is the prolonged stage of hyperesthesia and excitation caused by slow inhalations of ether. Every surgeon knows that anesthesia is only reached by larger doses, and therefore crowds the anesthetic as rapidly as safety will permit. By an extended observation of similar facts concerning different medicinal agents, we may hope to know more of cause and effect in curing disease.

2. The effect of a minimum dose (primary action) of any drug may be prolonged for a considerable time by the frequent repetition of the same minimum dose. This proposition involves only a simple addition and subtraction in its proof. The small dose, by being repeated often enough to make up the loss by elimination, continues to act in its original strength and that only.

3. The effect caused by a minimum dose is in most cases so varied from that produced by larger quantities of the same medicine as to entirely differ from it, and often to present symptoms directly opposite thereto. I will only here refer to drugs already mentioned as affording proof that the above proposition is substantially correct, and state further that even from our present knowledge many more might be added to the list.

4. That while minimum doses can not take the places of those ordinarily prescribed in the treatment of disease, the converse is equally true; and the proper use of the former, as remedial and prophylactic agents, is in strict accord with science. This has also been already discussed in a general way, and it only remains for me to mention the probable manner in which a minimum dose of a drug or virus acts as an effective prophylactic measure. I hold that in every morbid process there is a beginning, a premonitory, or at least an invasive stage, and that in many essential diseases this first stage is absolutely necessary to the development of the affection. This being the case exceedingly small doses of the specific poison producing the disease may, and probably do have sufficient power to begin the morbid process, but not having enough force to carry on the evil but a little way, become inert, the disease ends, and nature restore to health.

The small dosage cuts out the first round of the ladder as it were, and the further ascent is impossible. In prophylactic vaccinations small amounts of the specific poison producing a disease, or of another virus having a similar action to it, are introduced into the system in time to anticipate the stage of invasion, and to take its place; and we have sufficient evidence to believe that at least a few drugs are capable of developing conditions, so nearly resembling those produced by certain diseases, as to be in a similar manner and for the same reason prophylactic.—*Indiana Medical Journal*, August, 1888.

Fluo-silicate of Sodium.

Dr. Conrad Berens, of Philadelphia, in a communication in the *Therapeutic Gazette*, July, 1888, says: In February, 1888, Mr. F. H. Rosengarten kindly supplied me with a sample of fluo-silicate of sodium that he had prepared for investigation. The results of the experiments with the chemical in the laboratory, a preliminary report of which was published in the *Medical Register* of April 14, 1888, were so satisfactory as to lead to a more extended examination into the apparent virtues of the preparation as an antiseptic. In the experiments referred to above it was found that vegetable and meat infusion containing bichloride of mercury in the strength of one to one thousand, and those containing carbolic acid one to forty, were not proof against the inroads of bacteria, while similar solutions under identical conditions and containing fluo-silicate of sodium, one to one thousand, remained untainted. These latter solutions even now, after four months open exposure to the air, have yet to show any signs of life. In April a series of check experiments was started, as follows: Infusions of hay, beef and mutton, juice of a pineapple, orange, and lemon were taken and divided among five series of test-tubes,—A, plain; B, each containing one to one thousand bichloride of mercury; C, each containing one to one thousand salicylic acid; D, each containing one to forty carbolic acid; and E, each containing one to one thousand fluo-silicate of sodium in the three infusions, and six to one thousand in the juices. This variation in the uniformity of strengths in favor of the sodium solutions was made because it had been found that juices containing the fluo-silicate of sodium in the proportion of five to one thousand had afforded only negative results.

The 10th of June showed all of the infusions save those containing the sodium to be entirely possessed by both bacteria and fungi; while of the juice, those containing carbolic acid, bichloride of mercury, and of course the plain ones, were all unfit for consumption. Of those containing salicylic acid, the orange was undergoing fermentation, the pineapple and lemon being quite normal, not only to the eye and tongue, but also with the microscope. Those containing fluo-silicate of sodium were in excellent condition, the lemon alone showing a small fleck of fungi floating on its surface.

In another set of experiments urine was used as the fluid, and bichloride of mercury, one to five hundred, was compared with fluo-silicate of sodium, one to five hundred. The specimen containing the bichloride of mercury was found entirely decomposed and quite offensive after eight days, while even after three weeks the specimen containing the fluo-silicate remained free from ammoniacal odor, and showed no living vibrios under the microscope.

To test the deodorizing properties of fluo-silicate of sodium a six to one thousand solution was prepared and sprayed over the surface of a large cancerous growth springing from the right orbit of a child, and which was exceedingly offensive to the sense of smell. The result was most happy, the odor being killed at once, though bichloride of mercury in solution of one to five hundred had repeatedly failed to have any effect on the offensiveness of the same growth, while eucalyptol in twenty per cent. solution had only replaced the bad smell arising from the growth by a sorry mixed smell of turpentine and decomposing meat. Poured over fæces, the sodium silico-fluoride at once destroys the smell. After post-mortem examinations the sodium silico-fluoride rubbed on the hands while wet leaves them, when washed again, with not only no odor, but also no prinkling of the skin and no anæsthesia, such as washes of carbolic acid and of bichloride of mercury produce.

When equal parts of a fifty per cent. solution of egg albumen and a one to one thousand fluo-silicate of sodium solution are mixed together, the albumen is at once coagulated. Experimentally, thus it has been proved that sodium silico-fluoride is a prompt germicide, an efficient antiferment, an excellent deodorant, and coagulates albumen. The salt is prepared by generating hydro-fluo-silicic acid, passing it into water, and then saturating the liquid with carbonate of sodium. The salt is non-volatile, and is not destroyed by oxidation. It is freely soluble in water at 60° F., in proportions not exceeding half a grain to the drachm, the resulting solution being of a slightly saline and acid taste, perfectly limpid and odorless.

With these conclusions reached, or rather pointed to, the chemical was ready for those clinical trials that have so often proved disastrous to the reputation of promising antiseptics.

In solution fluo-silicate of sodium is of a slightly acid and very "clean" taste, unoffensive even when as much as ten grains in four ounces of water are taken internally on an empty stomach. As high as ten grains in solution have been taken internally three times daily for one week without any noticeable effect, though no analysis of the urine voided during this time was made.

In the conjunctival sac, solutions of the strength of two to one thousand cause a momentary sense of constriction about the lids, followed by a sense of great comfort and smoothness.*

Dr. P. D. Keyser reports that in all his cataract cases during the past five months he has used sodium silico-fluoride in one-tenth percentum solution without having to report a single case of suppuration. Dr. Keyser also states that he has used the solutions of this salt in not only his clinics at Wills Eye Hospital and the Medico-Chirurgical Hospital, but also in his private practice, with uniformly good results in both catarrhal and suppurative conditions; one case of violent purulent conjunctivitis yielding after three days.

Dr. H. E. Goodman reports that sodium silico-fluoride dusted over the slough in case of gangrene caused it to quickly separate, while under a continued use of solutions of the drug the surface was stimulated to a rapid healing.

Dr. Ziegler, resident surgeon of Wills Eye Hospital, reports that sodium

* For convenience in clinical work, some tablets containing sufficient sodium silico-fluoride to make a known solution when added to a given quantity of water may be prepared.

silico-fluoride in one-tenth percentum solutions has been used at the hospital during the past five months, and that the results more than satisfy him for the change from bichloride of mercury solutions, purulent and catarrhal conditions yielding very promptly to the instillations.

Dr. B. Berens reports three cases of gonorrhœa, all of which were cured in three days by injections of sodium silico-fluoride solutions in solutions of one to two to the thousand.

In twenty-two cases of acute catarrhal conjunctivitis, solutions of sodium silico-fluoride, one or two to one thousand, cured in four to six days.

Two cases of ophthalmia neonatorum, the one of two weeks' standing, the other of four days' standing, were both cured within five days by the instillation of sodium silico-fluoride in solutions at first two to one thousand, and later of one to one thousand, every half-hour. After four hours the character of the discharge had changed for the better.

In twelve cases of suppurative otitis the parts were brought into a healthy condition within a week by the instillation into the ears of a warmed solution of fluo-silicate of sodium from three to six times daily, and in the strength of two to the thousand.

During the past five months sodium silico-fluoride solutions of the strength of two to the thousand have been used in spray at the nose and throat clinic of the Medico-Chirurgical Hospital with uniformly good results. The solution destroys the odor of the inspissated mucus in atrophic rhinitis, and stimulates the underlying mucous membrane to healthy action.

In four cases of leucorrhœa, douching the vagina with sodium silico-fluoride —ʒss to the pint of water—caused the discharge to cease in from four to ten days.

In two cases of ulcerated cervix uteri with offensive discharge, the ulcers healed, one in three days, the other in five days, the only treatment being douching the parts with three-tenths percentum solutions of fluo-silicate of sodium.

In one case of chronic laryngitis with ulceration, spraying the parts with sodium silico-fluoride, grain one-half, or one grain to fluid ounce, night and morning, healed the ulcers in three days, while the continued use of the spraying for two weeks removed all hoarseness. In two cases of gleet, the one of two months' and the other of five months' standing, injections of one-tenth per cent. of solution of sodium silico-fluoride three times daily resulted in cure after ten days. In two cases of acid fermentation in the stomach, powders containing one grain sodium silico-fluoride gave prompt relief, administering one in water after eating. In two cases of balanitis, injections of two-tenths per cent. sodium silico-fluoride solutions removed all inflammatory symptoms after twenty-four and thirty-six hours respectively, complete relief resulting after two days. In one case of tinea circinati, applications of solutions of sodium silico-fluoride six-tenths per cent. strength allayed the itching at once, and cured the disease in five days.

In conclusion, then, it has been shown that sodium silico-fluoride is practically harmless; that it is more efficient than either bichloride of mercury or carbolic acid, in such doses as are not harmful or dangerous, in preventing decomposition; that it is extremely efficient in inflammatory conditions of the mucous membranes; and that in conditions associated with the production of

pus and the results of fermentative processes fluo-silicate of sodium acts with prompt and harmless efficiency. The more extended clinical use of the drug, I believe, will go to add further support to the evidence of its promptness and efficiency. These are reasons sufficient to call the attention of the profession to this drug.

Hydrastis Canadensis.

DR. SCHATZ, of Rostock, recommended five years ago, at the meeting of German naturalists at Freiburg, hydrastis canadensis as a remedy for hyperæmia and chronic inflammation of the internal genital organs. Since then this remedy has been very frequently employed, and private as well as public reports testify to the certainty of its action within reasonable limits. The want of success which has been observed by some medical men is, according to Schatz, partly due to the fact that the drug was extracted in Germany, and consequently not from the fresh plant. He has repeatedly obtained remarkably good results when the preparation used was the one recommended, which is made from the fresh American plant. In cases of uterine myoma the menses became not only less in quantity and more regular, but he has even seen a case in which the tumor, which had previously extended up to the umbilicus, had, after the constant use of the fluid extract for about two years, almost disappeared in the pelvic cavity. Schatz also confirms his former communications as to the fact that hydrastis causes no pains, but produces only dilatation of the vessels. He does not, however, wish to say that the drug makes all, or even most, operations for myoma unnecessary. The drug is also recommended in the too frequent or excessive menstruation of young girls. The hydrastis canadensis ha., however, generally to be taken for a long time and with great regularity. Another remedy which has also come from America is, according to Schatz, most valuable in some cases, because we have no substitute for it, although it cannot be nearly so often employed as hydrastis. It is viburnum prunifolium, which was obtained from the United States. This arrests the pains that some women, who have previously aborted, are apt to have during pregnancy, and which only too often lead to the premature expulsion of the ovum. This drug also has to be taken very regularly and for a long time, in doses of from forty to sixty grains of the inspissated extract. Under these circumstances, however, it cannot be replaced by opiates or by bromide of potassium. True, the opiates cannot be entirely replaced by viburnum, especially in all cases in which strong labor has actually commenced and requires to be arrested as promptly as possible. It will be impossible in such cases to do without rest and the recumbent position, at least for some time; and success is, of course, only possible if the ovum is still living, and further interference with it warded off. But Schatz has seen some cases in which at the first consultation the death of the ovum could not be assumed, and where it was retained for months in the uterus by means of viburnum; while it actually had been dead all the time, as was shown by its appearance when abortion subsequently took place. The viburnum does not act quickly or powerfully enough to be applicable to cases of normal birth or labor coming on suddenly. Schatz cannot as yet tell how the drug acts—whether by stimulating the inhibitory nervous centre of the uterus or by paralyzing its motor nerves. He thinks the former the more probable.—*Lancet*, July 21, 1888.

Antipyrine in Gastralgia.

DR. GEO. E. RANNEY, Lansing, Mich., in a communication in the *American Lancet*, August, 1888, says:

"The prompt relief afforded by the administration of antipyrine to a patient of mine subject to the severest periodic attacks of spasm of the stomach, prompts me to call attention to this drug in this connection that it may have a more extended trial in such cases, believing as I do it will prove efficacious. The case referred to above was in a young man, a bank teller, and though of slender build and nervous temperament, had no dyspeptic or other symptoms which are known to be frequently associated with gastralgia. He had been a victim of the disease some two or three years. His attacks which come on with but little premonition were paroxysmal, acute and violent, recurring at short intervals of from five to ten minutes during a period of from eight to twelve hours. His more recent attacks averaged one a month and were growing more frequent and severe and had become alarming as to a fatal result.

"On first being called to see him I gave him hypodermic injections of morphine, administered chloroform and applied hot applications to epigastrium to control pain, which remedies I was obliged to continue some eight hours before permanent relief came. His attacks always left him exhausted, lame and sore for two or three days. On being called again to see him for the same trouble, in about four weeks after my first visit, I administered ten grains of antipyrine, and directed him to repeat the dose every hour or two as required to control symptoms. Three or four doses aborted the attack. The symptoms have since recurred at increasingly long intervals and have been met in the same way and uniformly with the remedy always at hand he no longer requires help from a physician or others."

When Should Digitalis be Prescribed?

Bearing in mind the physiological and therapeutic actions of digitalis, it is a matter of less difficulty to give the principal indications for it in the organic affections of the heart. One of the indications for the use of the drug is the period of the cardiopathy. But before considering the question, when digitalis is useful, it is well to know when it is injurious or useless. There may be, says Huchard, a cardiac *lesion*, but still no cardiac *malady;* the state of cardiac contractility, which should regulate the employment of digitalis, is normal. In the period of eusystolism, characterized by normal and almost perfect ventricular systoles, digitalis is useless. Here hygiene should be the only treatment. Suppose we have an aortic or mitral lesion, with hypertrophy, and the attendant physical signs, with frequent epistaxis, repeated accesses of acute pulmonary hyperemia, congested face, injected eyes, ringing in the ears, heavy head, headache and cephalic throbbings, vertigo, the arteries beating with violence, the radial pulse full, vibrating, resistant, and there are frequent, often painful, sometimes nocturnal palpitations, causing more or less rebellious insomnia. Digitalis is injurious in these cases, says Huchard, for the patient has entered into the period of hyper-systolism, characterized by increased arterial tension, and the drug will increase his distress. Here, too, hygiene and diet are the remedies, or the bromides, aconite, and even arsenic, with perhaps leeches, or venesection.

For the same reason digitalis should not be given in the first phases of what Huchard terms arterial cardiopathies. For a long time he has insisted on the capital distinction between valvular cardiopathies and the vascular or arterial cardiopathies. The latter are nothing more nor less than the localization of arterio-sclerosis in the heart, characterized by increased arterial tension, which is the cause and not the effect of the sclerosis. In the early periods of arterio-sclerosis of the heart digitalis should be employed only with the greatest reserve, since by increasing vascular pressure it may lead to cerebral hemorrhages, and by it also the nocturnal palpitations are increased, dyspnœa becomes more intense, and anginous accesses may be provoked.

After the period of hypersystolism, aortic patients, less frequently mitral, pass into the period of hyposystolism or asystolism. Here digitalis is useful. It produces the best effects. But there may come a time when the effects are no longer obtained, when the systole is soft and without energy, or the cardiac cavities are distended, when there is circulatory obstruction with peripheral edema and visceral congestions, and diuresis remains below normal. Here digitalis is injurious, and for two reasons: 1. The cardiac muscle is profoundly altered, and digitalis can no more act on it than can electricity on a cut nerve. The drug here becomes an agent of prognosis and diagnosis, for it shows the existence of profound degeneration of the myocardium and of a true paretic state of its fibres (amyocardia). 2. In cardiac patients, in the subsequent alteration of the organs, there are two distinct periods: the one of venous stasis, the other of irremediable sclerotic lesions, in which cardiac drugs are given in vain. Still, in this last period caffeine in large doses may give very remarkable results.

Nevertheless, there are varieties in this cardiac paralysis, and there are degrees in this powerlessness of digitalis. The amyocardia (cardioplegia of Gubler) may be temporary, as may be the powerlessness of the drug. It should be remembered always that *if we wish to strengthen the heart we must facilitate and lighten its work.* Before prescribing digitalis we must empty the too full venous system, and this is best accomplished by venesection, local abstraction of blood, or by repeated purgations. Want of success with digitalis does not always depend, then, upon the disease, nor upon the patient, nor on the remedy, but upon the physician, who has not placed his patient in the most favorable conditions for the action of the drug.

At an advanced period of heart disease we often find albumin in greater or less quantity in the urine. This is not an absolute contra-indication to the employment of digitalis. The dangers of the administration of active medicines in renal affections have been much exaggerated, though that there are dangers no one can deny. But they demand prudence, not the doing away with drugs. That digitalis can be safely used in these cases is probably due to the fact that it is not eliminated by the kidneys, as was shown some two years ago by Lafon. While albuminuria is not a positive contra-indication to the use of digitalis, therefore, the drug should be used with caution in these cases, in moderate doses for two or three days, and its action carefully watched.

The seat of valvular lesions is an indication as to the use of digitalis. In aortic stenosis, for example, we know that the cardiac contractions and the pulse are slow. Why, then, should we prescribe a drug that will slow them still more,

and that will act very much as the malady does? By doing this we expose the patients to the dangers of digitalism. In aortic insufficiency the diastolic rest of the heart is already long enough; digitalis makes it longer, and increases the already high arterial tension caused by the disease. Why add to the already injurious effects of the heart disease? asks Huchard. In mitral insufficiency it should be prescribed only in cases of great cardiac irregularity, or of confirmed hyposystolism. In pure mitral stenosis it often causes bad effects. It should not be forgotten that mitral and aortic stenosis are the two cardiopathies that remain latent for a long time, and demand active treatment late. There is no doubt that in aortic affections, and especially in Corrigan's disease, digitalis is often contra-indicated for a long time; it raises arterial tension in an affection in which this is already exaggerated; by augmenting the suddenness of the systole it gives to the blood-waves violent and repeated oscillations, which, added to the high tension, may cause cerebral hemorrhages; it prolongs the already augmented diastolic period; finally, it contributes, by its vaso-constrictor action, towards increasing the visceral and peripheric anemia caused by the disease. In aortic affections more than in any other it is wrong to localize the lesion at the aortic valve, and then to take no account of the localization in the treatment.

But, says Huchard, the knowledge of the orifice affected is only of secondary importance for the indication of the drug. The therapeutic indication must be found in the cardiac muscle, as has been admirably expressed by Stokes, and endorsed by Laennec. The situation of the cardiac souffle, its intensity and its absence furnish no indications for the administration of digitalis; it is the state of the heart muscle and of the vessels, their feebleness (cardio-vascular asthenia), and asystolism, that demand the use of digitalis. Let us understand what is meant by asystolism, as Huchard uses the term. There exists in all cardiac diseases a period intermediate between hypersystolism and asystolism, which Huchard calls hyposystolism. Now let us suppose a case: We have a patient in whom some months ago there were all the signs of normal or even exaggerated compensation; the precordial shock was strong, vibrating and well limited, the apex slightly lowered, urine normal in quantity, no trace of visceral congestion, and no edema of the lower limbs. He now comes with slight perimalleolar edema in the evening, becomes breathless easily, and has palpitations and a sensation of fulness of the chest. Examination shows slight congestion of the liver, which is painful on pressure, pulmonary hyperemia and œdema; the cardiac contraction is soft, unequal and irregular, the cardiac impulse more extended, more diffuse, less sensible, the apex displaced, and cardiac dulness increased transversely; the first sound of the heart is more or less dull or weakened, the second a little loud in the region of the pulmonary orifice and to the right of the sternum. The pulse is feeble and undulating, the jugular veins swollen and prominent, and the urine scanty. In this case there should be no hesitation in regard to prescribing digitalis, for, says Huchard, there are three capital indications: feebleness of cardiac contractility, lowering of arterial and increase of venous tension, and scanty urine coexisting with peripheral œdema or visceral congestions. The urine furnishes indications for the administration of digitalis; if it becomes uratic, and falls below 800, 500, or to 200 grammes a day, digitalis should be given. In giving digitalis in cardiac affections we should examine the urine as carefully as we do the thermometer in fever.

In either asystolism or hyposystolism there may be three causes of error in regard to the contra-indication of digitalis: 1. The cardiac beats may be tumultuous and violent, the impulse of the heart becoming energetic for a few moments; but examination a few minutes afterwards may show that the energetic systoles are followed by weak or aborted and precipitate ones, constituting the cardiataxic asystolism of Gubler. Digitalis should be prescribed as a tonic and regulator of the circulation. 2. We may have a patient in whom the dilatation of the heart-cavities strikes against the thin and emaciated thoracic walls, giving the false sensation of energetic and violent beats. Here the clinical error is doubled if a therapeutic error be made by withholding digitalis on account of supposed exaggerated compensation. 3. In asystolism the dilated right heart is in immediate relation with the thoracic wall; if it lie close to the diaphragm the beats may be communicated to the whole epigastric region. The extent of these beats is no indication of their force; they will be found feeble, undulating, and scarcely appreciable, and digitalis should be prescribed.

To recapitulate with regard to valvular lesions: Digitalis is useless in the period of eusystolism, when the lesion is compensated; it is injurious in the hypersystolic period, when compensation is exaggerated; it is efficacious in the hyposystolic or period of transient asystolism, when the cardiac muscle and the vessels are suffereng from asthenia, and when there are œdemas, visceral congestions, dropsies, and the heart beats softly and feebly; in the period of definite asystolism, or of amyocardia, when the cardiac muscle is profoundly degenerated, digitalis is sometimes useful, it may be useless, or it may be injurious. It is in these cases sometimes that caffeine in large doses gives such signally good results.

There are still other classes of cases in which digitalis is used, but the consideration of these must be deferred.—*Journal of the American Medical Association*, July 28, 1888.

Katalytic Action of Electricity; its Value in Rheumatism.

Dr. G. L. Walton, Clinical Instructor in Diseases of the Nervous System, Harvard University, in a communication in the *Boston Medical and Surgical Journal*, August 2, 1888, says: It has been long recognized that the effect of the electrical current on animal tissues comprises something more than the stimulation of nerves and muscles. Remak first called attention to the alteration produced in living tissues by the passage of the galvanic current, and applied the name "katalytic" to this function. Experiment has shown also that fluids may be made to pass into the body by means of special electrodes adapted to the purpose, a property of the electrical current which has been termed its "kataphoric" action. Whether the latter is an element in the production of the katalytic action, or whether vaso-motor changes, improved nutrition by stimulation of the trophic mechanism, increased tissue-metamorphosis, osmosis, or molecular changes, each or all, are important factors, cannot as yet be accurately determined; the conditions are too complicated for satisfactory experiment and analysis. The practical bearing of the question lies in the fact that therapeutic experiment has demonstrated beyond a doubt that such changes may be

produced in the tissues as to cause improvement and even recovery in certain disorders not yielding to other treatment. Prominent among these disorders are subacute changes in or about the joints, of rheumatic origin.

Erb quotes the observations of Remak, Rosenthal, Meyer, Cahen, Cheron, Weisflog, Benedikt, Onimus, Legros and Erdmann, as well as citing his own personal experience, to illustrate the practical benefit of electricity as a therapeutic agent in various forms of arthritis, including acute and chronic rheumatic and traumatic affections. It appears proved that exudation and pain may be made to disappear, and the normal mobility of the joints restored, in cases where other remedies have failed. Rosenthal and Bernhardt allude to the effects of the galvanic current on rheumatic affections of muscles and joints, choosing the subacute and monarticular joint affections as the most promising objects of experiment. They recommend especially the galvanic current, considering Faradism also valuable as a counter-irritant, as well as Faradization of neighboring muscles. They state that even in acute rheumatism the Faradic current and the wire brush have been found to lessen pain and shorten the disease, but throw doubt on its supplanting salicylic acid and other remedies. They allude to the passage of galvanism or Faradism as promoting absorption of joint exudation and lessening the pathological processes in the neighborhood of the joint (fasciæ, tendons, periosteum and muscles). Beard and Rockwell state that electricity has been employed with more or less success in rheumatism from the early periods of the history of electrotherapeutics, and add that this is the disorder against which (next to paralysis), the original experiments of electrotherapeuticians were most frequently directed. They lay stress on the importance of the *general* application of electricity, inasmuch as the disease is constitutional, and recommend general Faradization quite as strongly as local application. They find subacute and acute cases far more amenable to treatment than chronic. For the local treatment galvanism and Faradism are recommended alternately. The general application is said to increase the flow of urine, to cause generally more or less exhilaration, and to relieve pain; the local application relieves pain, reduces inflammation, and when effusion has taken place, causes absorption; the latter being affected by both currents, in some cases more powerfully by the galvanic. The caution is added that if the currents are used too strong or too long, the pain and inflammation may be increased. In the cases quoted by these authors, general Faradization seems to have been the chief agent, although in one case the application was made with special reference to the diseased parts. In myalgia, or muscular rheumatism (characterized by pain on movement diffused through the muscles, and caused usually by exposure to cold and dampness), local Faradization with the mild current either stabile or labile, usually causes relief in a short time. Stabile galvanism may relieve at once; severe applications may increase the pain. They add: "Of the large number of cases that we have treated, nearly all have been relieved by one, two, or more applications. A single application with a mild current, prolonged for one or more hours, may sometimes dissipate an attack of myalgia." In one of the two cases cited, general Faradization was used in a case of several years' standing, cure resulting in three weeks. In another case, muscular rheumatism existing in the hips and limbs for a month, recovered in a fortnight under daily Faradization

of the affected parts. Duchenne[1] reports cases of muscular rheumatism, rheumatic paralysis, and rheumatic contracture, cured by the use of Faradism.

Other authorities could be cited to confirm these observations, but enough has been mentioned to show that the subject is one which has attracted universal attention among electrotherapeutists from the first. It seems, therefore, somewhat remarkable that the profession in general have made so little of this branch of electrotherapeutics, even while the application of electricity has been greatly in vogue for all forms of paralysis, for which it has for a long time been applied indiscriminately, sometimes in accordance with, but oftener in defiance of scientific principles. The experience of the writer has been most satisfactory in the treatment both of muscular and articular rheumatism; successful results have followed, almost without exception, in the cases where it has been tried; a careful selection of subjects having contributed largely to this result. Long standing, chronic cases, such as deforming arthritis, have not been operated upon, for in no such case has the prospect of recovery seemed sufficient to warrant the trial. Cases of acute rheumatism, again, have hardly seemed to me appropriate subjects for this form of treatment, in which opinion I coincide fully with Rosenthal and Bernhardt, quoted above. Indeed, far from electricity replacing internal remedies in the treatment of acute rheumatism, it is to be feared that more harm than good would be brought about by its use.

The cases selected have been limited to subacute, monarticular rheumatism, to muscular rheumatism of not too long standing, and to allied conditions. In every case the electricity has been applied locally. I would not underrate the value of general Faradization for cases of general debility resulting either from persistent rheumatism or from other causes. I do not, however, feel convinced that the root of the disease, as such, is directly attacked by general Faradization, as implied by Beard and Rockwell. My experience leads me to emphatically endorse the caution of Beard and Rockwell regarding excessive length and strength of application, especially in acute cases. A medical friend, suffering from subacute rheumatism, having found the Faradic current extremely efficacious in reducing the swelling of the finger-joints, gave himself a sitting of forty-five minutes with a strong current, and produced thereby a decided accession of pain, stiffness and swelling. In one case of muscular rheumatism, again, quite acute, the galvanic current was given by my advice, and ten cells of the chloride of silver battery, applied ten minutes, aggravated the trouble so greatly as to cause its discontinuance. The exact amount of electricity received in the case cannot be accurately determined, since no galvanometer was used. The following will serve as illustrations of more favorable cases.

Case I.—J. R., janitor, thirty years of age, treated in conjunction with Dr. W. J. Otis. Two months previous to the commencement of treatment had rheumatic fever with pain and swelling, involving principally the right fingers and wrist, the right shoulder and ankle being also affected. The symptoms rapidly disappeared, excepting in the right wrist, where considerable pain, and marked swelling and stiffness persisted.

Examination shows the wrist red and swollen: it can be flexed fairly well, but neither extended nor adducted without great pain, and not to a great degree

[1] De l'électrisation localisés, p. 883.

even with pain. He cannot double the fist, nor approach the thumb to the little finger: flexion of the fingers, both active and passive, is impossible, and spreading of the fingers is difficult. The grasp with the dynamometer is zero. Massage is painful. The muscles of the extensor group are wasted,—the right forearm measuring 9 inches, the left 10½ inches; the right wrist measuring 7½ inches, the left 7⅛ inches. The reaction of extensor muscles, both to the galvanic and Faradic currents, is decidedly lessened in degree, though not altered in quality (that is, no degeneration reaction). Lead-poisoning, poliomyelitis and neuritis were carefully eliminated.

Treatment.—A moderate galvanic current passed through the wrist and fingers (medium-sized electrodes of metal covered with chamois-leather); Faradism and galvanism to the muscles. The electrodes were placed opposite each other, at different points about the wrist, and held quietly, so as to allow the current to pass directly through, the current being occasionally reversed. Each sitting lasted about twenty minutes, and was repeated daily.

Improvement was apparent after the first sitting. On the third day the patient could flex the fingers, and reach the last phalanx of the little finger with the thumb: slight adduction of the wrist was possible, and the grasp was improved. At the end of the first week the dynamometer registered six: there was no pain on movement, little on massage. At the end of the second week the dynamometer registered ten; there was no pain on movement or massage; the fingers were easily spread, and the thumb could be approximated to the base of the little finger; adduction fair; extension possible to the straight line; swelling lessening, and forearm increasing in size. A splint was applied to assist extension. At the end of the third week the right forearm had increased from 9 to 9⅜ inches, and the right wrist had decreased from 7½ to 7¼ inches; the dynamometer registered fifteen. At the end of the fifth week no swelling was perceptible at the wrist; all movements of the wrist and fingers were free, excepting a very slight restriction in extension; the grasp was good, although the fist could not be clenched quite as firmly on right as on the left. Treatment discontinued.

Case II, kindly referred to me by Dr J. R. Chadwick. A prominent lawyer, beyond middle age, a rather heavy man, had suffered during the previous winter from a severe attack of sciatica, which entirely disabled him, and required the use of opiates. This wore off, and by spring he was able to get about easily. Early in the summer the ankles began to show a tendency to swell, more especially the left. The trouble increased until it caused the patient considerable annoyance. The swelling was unaccompanied by noticeable pain or redness, but was increased by exercise, being especially marked at night.

Treatment was commenced in the middle of October, no promise of benefit being held out. The Faradic current (every other day) was first applied, and the result was so gratifying that this form of electricity was used throughout. The swelling could be seen to lessen, and the movements of the feet to become more free during each application. The return of the swelling between the applications became gradually less marked, and in two months and a half the ankle was virtually normal, and the treatment was discontinued. Recurrence of the trouble one month later caused the treatment to be recommenced, with similar result

two weeks proving sufficient for recovery. During the two years succeeding there have been occasional intervals of moderate swelling, accompanied by slight pain and stiffness, not sufficiently marked to require treatment. There has been, also, one attack of sciatica.

I have treated a number of cases of muscular rheumatism, notably of the neck and back, with results coinciding with those of Beard and Rockwell and other writers. No case, however, offers sufficiently marked or unusual characteristics to justify especial mention. The rapidity with which pain and stiffness sometimes disappear under the treatment certainly warrants the assumption that the current produces some definite change in the tissues, and acts as something more than a stimulant to nerves and muscles. It seems not improbable that here, too, we have to do with the absorption of a moderate degree of exudation. Cases of the ordinary form of stiff neck from exposure to cold have shown marked results from the use of galvanism to the affected side and Faradism to the opposing muscles.

Swelling of the ankles like that seen in the second case quoted above is not an uncommon symptom in corpulent people, without cardiac or renal troubles, and even without the rheumatic tendency evident in his case. In several cases of this nature, as well as in the troublesome cases of pain in the heels and soles of the feet caused by overuse, and which can hardly be classed either under rheumatism or neuritis, but which tax severely the patience of both physician and sufferer, I have been surprised at the degree of benefit obtained from the use of electricity, and in place of suggesting it as a last resort have become encouraged to recommend it in many of these cases with considerable confidence. In this class of cases the Faradic seems fully as efficacious as the galvanic current, the explanation of which it would be premature to attempt in the present unsettled state of our knowledge regarding the effect of either current upon the organism. The thought would suggest itself, however, that counter-irritation and the modification of the superficial circulation play a great part in the cures affected by Faradism, in contradistinction to the katalytic action of galvanism. Further investigation is desirable to aid in the classification of cases, and to permit more definite indications for the choice of currents, the object of this paper being rather to emphasize the practical advantages to be gained by this form of treatment than to discuss the theory of its action.

Phenacetine.

Phenacetine, being insoluble in ordinary menstrua, is best administered in the solid form. It may be dissolved with the aid of heat, in lactic acid, and when thus dissolved does not reprecipitate unless the temperature falls below 90° F. The average dose is ten grains, but as an antipyretic it is best given in smaller doses frequently repeated. Fifteen grains do not produce any effect on a healthy person, nor do they in the fever of malaria. It has given good results in pneumonia and capillary bronchitis. In the hectic fever of tuberculosis the effect was satisfactory, but was more marked on the first day than subsequently. To produce anything like a permanent effect, eight grain doses every four hours were required. As an analgesic, phenacetine is best given in single large doses. It proved of special benefit in chronic cases, such as lumbago and sciatica of

long standing, and great relief was obtained from its use in dilatation and other neurotic conditions of the stomach, more particularly when the affection was associated with organic lesions. In migraine it is decidedly inferior to antipyrine. It has not been known, so far, to give rise to any disagreeable symptoms, so that even when its use was not attended with benefit, no inconvenience has followed.—*Medical Press and Circular*, July 18, 1888.

Antipyrine.

Dr. Benjamin Marshall, of San Francisco, in a communication in the *Pacific Medical and Surgical Journal*, July, 1888, says that occasionally there is made known to the medical world the discovery of some new medicine, or new power in an old one, which is so startlingly promising for good in a new direction, as to enlist universal interest and investigation. The medical and lay journals teem with its wonderful properties from numberless observers. The warnings of wiseacres come in and then the sum total of its power is approximated, and the remedy drops into its proper niche in all the text-books. Such has been the history of late years with, for instance, chloroform, cocaine, and later antipyrine.

This substance had been in common use as an antipyretic for several years, but about one year since Germain Sée published his experience in its use, announcing a new property which was so promising for good, as to challenge criticism from the least skeptical. Subsequent experience has not only fulfilled that promise, but has shown that the half had not been told. This drug has now about run the usual course. Six months ago no medical journal was without from one to many notices of its uses, whereas, now, he says, it is seldom mentioned, and already it is relegated to its presumably proper place as an antipyretic and analgesic.

He protests against a too summary verdict upon this medicine. For although the literature on the subject has been very profuse, too much so against it perhaps, it is by no means certain that it is exhausted in the other direction, for continued experimentation is rapidly broadening its field for usefulness and in directions which must make us search for other modes of action than those already accorded to it. We call chloroform, he says, an anæsthetic and apply it in the ranges covered by that effect. We call cocaine a local anæsthetic and nerve stimulant, and it takes its place as such; but, he asks, what shall we call antipyrine? This part of the field is only explored, and the question how else may it act is still an unknown quantity to the thinking mind which recognizes its broadening effects. He says: "Let us not through fear of seeming to deal in a subject that is trite, or through prejudice against a remedy which is proprietary and used to a large degree empirically, relegate it to the text-books on its present reputation, but keep the matter in discussion until its full power for good is known."

He thinks too much has been written against it, for he feels convinced that all or nearly all the direful consequences laid against its use are easily explained away. Death may have been a coincidence, as, for instance, when a patient suffering with peritonitis died in collapse, after taking an insignificant dose of the medicine. The most noticeable case on record being of that character. Or,

again, death may have resulted when the medicine had been improperly administered, as in combination with spirits of nitre by which a deadly compound results, the aniline being set free. Of course, he does not forget that many persons have idiosyncrasies, which render them obnoxious to its use through the occurrence of urticarial eruptions and other discomforts, all of which is also true of many other very simple things,—shell-fish, strawberries, etc., and is merely the reflex expression of some local irritation, and is easily avoided with antipyrine by giving the latter in plenty of water. For this reason it should not be given by the mouth without adding at least f℥ij of water to every ten grains. He has never known of any inconvenience when it is given in this way. The greatest danger yet to come will probably, he thinks, occur when it is thrown upon the market by irresponsible manufacturers. This danger, he says, is greater from the delicacy of its composition and the absence so far of any true test of its purity. He has known twenty grains to have been taken inadvertently for eight consecutive hours without any bad effect, and although he admits it might not be advisable with our present knowledge to give it in large doses in advanced heart disease, yet the records do not show that it has any effect on the normal temperature, or that in fever it lowers it more than one or two degrees below that mark, proving it to be as harmless as veratrum viride, against which the first fatal collapse, even in advanced heart disease, remains to be recorded.

The effect of antipyrine, when continued for a long time, is as yet conjectural, but probably it is not more serious than that of the continued suffering which would make such a use of it desirable.

It has been a question of much anxiety to learn what effect upon the kidneys might be expected. It is known to diminish the quantity of urine. In diabetes insipidus it acts sometimes marvelously well; but in glycosuria, although the amount of urine is greatly diminished, and in some cases the sugar also, the rapidly increased elimination of albumin has put a stop to its continued use. Upon the normal kidney it has but little effect, except in most instances lessening the secretion slightly. The induced presence of albumin has not been noticed even after continued use. Upon all the other secretions its influence is apparently *nil*.

Dr. Marshall, therefore, asserts, that in antipyrine we have: First, an antipyretic which is effectual and safe, differing from most other antipyretics in being more or less curative; as such it is most useful in traumatic and rheumatic fevers, and in the first stages of all fevers or acute diseases not of septic origin, its usefulness for permanent relief being in proportion to the stage of the disease. For instance, he says, "in acute rheumatism, I believe it to be curative; in sub-acute, less so, and in chronic palliative as a rule only. I do not believe that its usefulness ends at the absence of positive indications for its employment as an antipyretic, but that it may be valuable long after that or throughout the course of a disease to palliate the discomforts attending the febrile condition. It has been found especially serviceable in the acute diseases of children, who tolerate the medicine well, requiring larger proportional doses to obtain the same effect."

"Second. As an analgesic it stands pre-eminently above all others. Free from the accompanying or after effects of opiates, anesthetics and other like remedies, and more rapidly effectual. Whether given by the mouth, the rectum

or hypodermically, it subtly removes pain of the most agonizing nature. Not stimulating or exhilarating to the nervous system, there seems to be no danger of forming habits uncontrollable, as evidenced by the fact that although in common use for so long that contingency is not even considered. One hundred grains in twenty-four hours in divided doses, may be given by the mouth, seven to ten grains, at intervals of thirty minutes, six or seven times hypodermically, and per rectum it is said that equal or smaller doses than given by the mouth produce the same effect. A sitting posture is preferable if the pain is in the upper extremity, and a recumbent one if in the lower, as well as a darkened room, avoidance of conversation or other mental occupation.

"There remains something else to be said in this direction, and that as to its external uses. Little has been recorded as yet, but that there are possibilities for good is beyond question. It has been used much in the same way as hamamelis and apparently with about the same effect, notably in hemorrhoids and as a local hæmostatic.

"Third. What else is it? I have already claimed that together with its antipyretic effect it has a curative power. I will say more. I claim that it will prove to be a specific for some diseases hitherto considered troublesome if not intractable—migraine for instance. And I have in mind several cases of gout, all typical, when the explosion was sudden and excruciatingly painful, and when I remember that in twenty or thirty minutes the pain was rendered bearable—if not entirely relieved—and that these attacks under a proper continuance of the medicine were cured more certainly and more permanently than with colchicum, without the disagreeable consequences so frequently attending the use of that medicine; and also that the diathesis seemed to be so modified as to render the attacks less severe and less often. I cannot help hoping for a bright future for this remedy in this direction, if the future experience of others and myself should verify these experiments. In which event, if, as it is claimed, uric acid is not eliminated under its use, the etiology of gout is still a mystery. What this power is I do not pretend to say. I leave this part of my subject for future discussion, but the varied and contradictory uses to which this medicine has been applied is bewildering to those who are accustomed to look for a reason for everything. Sthenic, asthenic diseases, epilepsy, labor pains, hysteria, carbuncles, all yield more or less to its potent influence, while the field is still widening; and yet there is an acknowledgement to be made, which is, that occasionally a more simple and obvious indication for its application arises, in which we are disappointed and must resort to something else. But these exceptions are rare and not of sufficiently frequent occurrence to affect the general rule. In closing this article let me again earnestly urge the continued reporting of new successes or unique results in the use of this medicine, and also to pay my tribute to the genius of the man who first made known the value of this remedy. Numberless people now thank the one who has brought relief to their sufferings, and in future time the name of Germain Sée will stand with that of the discoverer of the anæsthetic power of chloroform."

He then reports the following cases, which give some idea of the varied conditions in which this medicine has proved useful in his hands, and is mostly in accordance with the reported experience of others:

"*Case I.*—Gout. Mr. E. M., aged 55, has been subject to attacks of gout for years, which were gradually becoming more frequent, and of late at intervals of four or five weeks; was depending upon a patent remedy composed, evidently, largely of colchicum, and from which he did not usually receive any relief under twenty-four hours. I was called at the beginning of one of his attacks, and requested to give him an hypodermic injection of morphine, to ease his suffering until his usual remedy should take effect. His right wrist and elbow were swollen and excruciatingly painful. Disregarding his request, I ordered antipyrine; gave him twenty-five grains; turned down the light; told him to keep quiet; have no one in the room to talk to, and left myself. In thirty minutes I returned and awakened him from a sleep; the pain was immensely relieved. I then ordered ten grains to be given every two hours, and left him for twelve hours. Upon my next visit he was around the house. Feeling delighted at being so quickly relieved, for the pain was quite all gone, I then put him on ten grains every four hours for six days—pain or no pain. At the end of that time the pain and swelling had entirely disappeared. When I was first called he was about to make his usual yearly visit to Carlsbad, and now started East for that purpose. He was detained in New York longer than expected, when he felt so much better that he postponed the continuance of his trip and returned to California. He has now for over three months had no attack, and thinks that he is not only free from their frequency, but hopes that he has become altogether cured.

"*Case II.*—Gout. Mrs. E. H., aged 50, was subject to occasional attacks of gout, affecting the first joints of both hands, at which times the joints would be swollen, hot and painful, and of late deflected more or less after each explosion. I was called at the beginning of one of her acute attacks. I gave her antipyrine, x grains every two hours until the pain was relieved; taking fifty grains. I then gave her ten grains four times a day for ten days. She continued to improve, and at the end of that time all pain and most of the swelling was gone. I then ordered ten grains once a day for one month, and since then the same quantity twice a week. It is now six months since I saw her. She has had no more attacks; the swelling, which had become chronic, is removed, and her fingers, though not all quite straight, are wonderfully improved. It looks as though she had escaped a disease which was progressive and becoming markedly chronic.

"*Case III.*—Carbuncle. Mrs. T. P., aged 53, suffering with glycosuria; has had carbuncles before; consulted me about one week after the beginning of a recent attack. I found a well-defined carbuncle on the left side of the back, just above the crest of the ilium; the mat portion was three inches long and two and a half broad, the center was already assuming a dusky hue, with several little points, showing beginning of the honeycombing process; the edges red and an areolar ring, an inch or more wide, over the surrounding tissue, and the whole thing exceedingly painful. I did not use the knife, as her experience with that line of treatment in previous attacks had not been satisfactory, but used poultices. The next day it was worse; I continued the treatment. On the third day she was still worse, the mat evidently growing larger, and I began to fear for the ultimate recovery of my patient. As the pain was very severe (although

apparently contraindicted), I concluded to give her antipyrine. As an analgesic, simply, it acted promptly. She took ten grains every hour, until she had taken forty grains. The next day, in addition to the relief of pain, I found to my surprise that the congested areolar had almost disappeared. The edges were not as marked, and there was a perceptible shrinking of the whole abscess. Taking the limit, I gave her five grains every three hours for several days. She continued to improve; the carbuncle grew smaller; the center suppurated and healed rapidly by granulation. The poultices were discontinued, and nothing done but the occasional application of spirits camphor, and keeping it well covered with ung. amyli, together with nourishing diet and a fair quantity of stimulus.

"*Case IV.*—Cerebro-spinal meningitis. I was called in consultation with Dr. C. C. Vanderbeck, to visit a boy of about eleven years, whose symptoms pointed conclusively to an abrupt attack of this disease. Delirium, opisthotonos, etc., were present. It was the second day of the disease, and he was becoming rapidly worse. He had been under the usual course of treatment recommended in such cases. We decided to try antipyrine, and ordered five grains to be given every hour for several hours, and watch the effect. We saw him again the next day, he had taken eight doses before any perceptible effect was manifest, when there was a marked mitigation of the symptoms. The medicine was continued at longer intervals. He continued to improve, quieting down, becoming rational and taking food, and made a rapid recovery.

"*Case V.*—Dysmenorrhea. Miss A. D., hair dresser, aged 19, had been for two years or more a great sufferer from this trouble. The pain was present during most of the menstrual period, and was so severe that she was obliged to remain in bed. Her general health began to suffer in consequence, and she was fast becoming a confirmed invalid. Upon consultation, I advised the use of antipyrine, and powders of ten grains each were ordered with directions to take two when the pain began, and one every hour after until six had been taken, if required, and then report. At the next period she took the two, and one, one hour afterwards. She was so much relieved that she did not take any more until reporting. She was then told to take one three times a day for the rest of her time. She had no further trouble, and at each period anticipates the pain at the first warning, and is able to continue her vocation comfortably.

"I will close this record with these few cases taken from many, but they are sufficient to show the value of this medicine in diseases not usually or readily amenable to other lines of treatment."

III. GENERAL CLINICAL MEDICINE.

Inveterate Headache, With Cases.

Dr. Hamilton Osgood, in a paper read before the Section for Clinical Medicine, Pathology and Hygiene of the Suffolk District Medical Society, May 9, 1888, says: To write upon persistent and oft-recurring headache is nearly as discouraging as the attempt to overcome it by treatment. It is an affection which either yields to no remedy whatever, or, if it be relieved, is sure to return as soon as the effect of the panacea has disappeared. If not of this inveterate character it is very frequent, is intractable while it lasts, and so capricious, that although it may yield to a given method of relief upon one occasion, upon another the treatment is not of the slightest avail. This discourages the patient and annoys the physician. If the latter be a routinist he is embarrassed. He plies his anti-neuralgics. They achieve little or nothing. Sometimes he feels encouraged; generally he is baffled. Strange as it may seem he makes no effort to discover a hidden cause for the pain. To him headache means neuralgia, and the remedies he applies are simply those which report says are efficient in such cases. Occasionally, among wiser and more thoughtful physicians, there is a degree of indifference, a careless resort to a well-thumbed prescription which generally fails. The case is uninteresting. It presents no stimulus to the physician's mind. In short, he neglects the patient and wins what he may deserve, but which is not true of him, a reputation for ignorance.

The common, the non-perilous ailments of our patients are apt to be superficially treated. Headache is a plague to an indolent medical man. He regards it as of little moment, and treats it accordingly. To the patient, however, the ailment is of a serious matter, depriving him as it does of power in practical life, of enjoyment of vacation, of comfort at home. It entails annoyance to others, for it renders the sufferer irritable, unjust and uncompanionable. If he be not relieved when he might be, the physician naturally deserves blame for an evil of wide extent.

In the nerve-tissue concerned in the form of pain in question, there seems to be almost intelligence and reasoning power. Unfortunately, this is shown by the incessant endeavor of this tissue to reassert itself. Pathologically sensitive nerves seem never to forget their capability of creating suffering. One might say they were ever on the alert for lack of vigilance on the part of the patient; that they constantly lurk for opportunity, for, no sooner are they quieted by the physician's skill than they start up armed with new vigor in their diabolical ability to torture humanity. Their arts are hydra-headed and woe betide the object of their wiles if he for a moment relax his self-defence. He may forget, but they never do; on the contrary, the more careless he, the more active and energetic are they.

It is no wonder then that chronic headache is indifferently treated by so many physicians. The very persistence of the pain too often destroys the interest of the medical attendant.

Inveterate headache may be relieved by one or more of the scores of internal and external remedies, but these merely wither the fruit without touching the root of the evil. Indeed, the management of this affection is so empirical that it recalls Voltaire's reflection upon the practice of medicine, which he said consisted in: "Putting medicine, of which we know little, into a body of which we know nothing." No sooner does a form of the treatment promise success in a patient, whose look and daily history indicate that at last the headaches have yielded, when like a thunder-clap, a new series of attacks appears, and the course adopted and heretofore efficient, becomes inert.

As an illustration: A woman, single, aged 55, had suffered from intense headache since her youth. She had had every variety of treatment; has consulted many physicians. Remedies which on one occasion relieved her failed utterly on another. Change of climate was extremely beneficial during one year. On returning to the same locality the following year her headache was incessant. She is known among her friends as a victim of pain and has had every reason to feel profound discouragement. My first professional interview with her was during an attack of headache, in which as is usual with her at such times, she seemed nearly unconscious from suffering. I was merely asked to relieve her by a subcutaneous injection of morphia, which I did, using one-half grain. Subsequently, I was requested to take charge of the case. A careful examination gave me the following information: The patient was well-nourished; appetite generally good; bowels in normal condition; her face showed the exhaustion caused by chronic pain; the menstrual periods (now passed) had always been regular, and, save that a headache was apt to follow them, free from annoyance of any nature. Her headache occasionally extended to the left side of the cranium, but was almost wholly confined to the right side and never took the form of clavus. The onset of pain, however, was not peculiar to the menstrual epoch, but occurred irregularly at other times, and so frequently that the patient was never sure of being able to keep any engagement whatever. "Pain is the prayer of the nerve for healthy blood," said Romberg.[1] During the thirty years of her experience of pain, this lady has taken every sort of tonic and every variety of blood-making food. The wise adage, "Eat when your are hungry but not so long as you are hungry," has been carefully observed, as have also the ordinary laws of health.

Sudden changes of weather have always given her great discomfort. This may be explained by Wright's[2] computation to the effect that the change of one inch in the barometer increases or decreases the atmospheric weight which the body of an average man sustains—by 1,080 pounds. "The results in periods of great weather fluctuations are headaches and even apoplexy." In my patient it is easy to imagine the painful effect of the abrupt oscillations in the circulation, which would occur under such conditions.

The headaches I found to be invariably preceded by flushing of the right

[1] Nerven Krankheiten.

[2] On Headache.

ear, the color deepening, as the pain appeared, to a livid hue. A little later the left ear became flushed but never took on the darker color of the right.

This anomaly in the circulation led me to examine the heart. I found it free from organic lesion, but the first sound was weaker than the second, and both sounds as well as the character of the heart's pulse indicated lack of power in the cardiac muscle. This explained the temperature of the hands, which were invariably cold, and caused me to suspect that the lividity of the right ear during an attack of pain and the deeper co-existing color of the right face, as compared with that of the left, were due to weak heart and habitual lack of vaso-motor energy in the bloodvessels of the right side of the head. This, I argued, was a logical accompaniment of the persistence of pain in this side, and probably showed a chronic dilatation, or at any rate weakness in the walls, of the vessels of the right side, and which become apparent whenever the irritation of pain reflexively lessened the energy of the heart. During an attack, I further argued, these vessels probably dilated and since "vessels of the brain are not supported by pressure of surrounding elastic muscles, and have, moreover, a less powerful construction, than have bloodvessels elsewhere,"[1] this temporary dilatation of weakened vessels created a local obstacle to the onward flow of the blood, and hence the increasing deeper hue of the visible tissues of this as compared with the left side of the head and face.

The stagnation of the blood-current is naturally followed by an accumulation of carbonic acid, and in consequence by an exacerbation of pain. A good illustration of this local condition of the circulation may be seen in the purple outlines of the blood-vessels of a drunkard's nose. Here the vaso-motor energy is permanently deadened by alcohol, and we see the constant presence of carbonic acid. In the patient in question, however, the local impurity of blood disappears so soon as the pain and its reflex effects upon the heart cease.

In behalf of my theory allow me to digress for a moment in order to relate the most striking instance of neurotic reflex which has ever come to my notice. Some years ago I was called to a lady who was suffering from severe pain in the right ear. I had frequently relieved this ear of large masses of wax, and the patient rightly suspecting the cause of the pain, had vainly tried to clear the ear in the usual way. When I reached her house the lady told me she was also in great discomfort from a delayed menstrual period, now eight days overdue. It required fifteen minutes of time and copious injections of warm water to free the patient's ear from a very large mass of cerumen. The relief was immense, and, moreover, before I left the house the *period had appeared.*

It is not strange then that great pain in the head reflexively will lessen the power of the heart, and I feel very confident of the correctness of my argument in the case in question. After writing the foregoing, I happened to find in Anstie's clever book on neuralgia, the following remark: "muscular viscera which are composed of unstriped fibre, like intestines, or of a mixture of striped and unstriped, like the heart, are probably very liable to a secondary paralytic influence from certain special neuralgias."

Still I was no nearer to a discovery of the original *cause* of the headaches. As to the quality of pain I may safely repeat Begbie's words in relation to a

[1] Wright on Headache.

similar case quoted by Day, in his book on headache: "It was not nervous, nor hysterical; it was not inflammatory, nor congestive; it was not anæmic; it was not dyspeptic; it was not of a rheumatic, nor of neuralgic character; it was not periostitic; it was not periodic." Finally, something in the general look of the patient, nothing positive, there being no especial symptom which could be named, suggested gout. The patient denied all knowledge of any case of this ailment in her family, but a careful inquiry into the family history revealed the fact that in several of her ancestors gout had existed. I at once determined to test this possibility, and took with me a quantity of the patient's urine for examination.

Previously, however, I ordered tincture of strophanthus in doses of four drops which I subsequently increased to eight drops, three times daily. I may say here that even before I adopted any other form of treatment, so soon as the cardiac tonic began to show its effect in a relatively stronger first sound of the heart, the headaches became less intense in character, the discoloration of the right ear appeared less frequently, and when it did appear, was far lighter in hue. This was the first proof that the headaches were partially due to weak heart.

In examining the urine, I did not make a quantitative analysis for the uric acid present, but did find the fluid intensely and unusually acid, and that the specific gravity was 1,034. This, in the absence of albumin and sugar, confirmed me in my suspicion of the existence in the patient of a gouty tendency.

[In a lecture upon gout, Trousseau relates a case of headache which puzzled him extremely. This was in the early days of his practice. After a long period of doubt and insufficient treatment, the case was cleared up by a frank onset of gout, in reference to which Trousseau makes the interesting remark: "I did not then know that *gout and migraine are sisters.*—*Clinique Médicale*, Vol. III.]

Prescribing the bi-carbonate of soda in scruple doses, three times daily, the urine soon became moderately acid, the specific gravity fell to 1,024 and during the following six months, not only did the headaches become very infrequent but when they appeared the pain, save in two instances, was not acute.

Meanwhile, under alternate use of the tinctures of strophanthus and digitalis, the circulation of my patient had improved to such a degree that the hands and feet became habitually warm, her face lost its expression of exhaustion, her eyes brightened and she looked years younger than when I first saw her. This change corresponded with a steadily increasing power in the first sound of the heart which was now stronger than the second sound. During this interval, I substituted Buffalo lithia water (spring No. 2) for the soda, and the patient became more comfortable than she had been for several years, only two headaches of moment occurring during these six months.

This period of truce was then suddenly interrupted by onset after onset of intense headache, which, however, to my great relief, I soon found had their origin in the suppurating pulp of a molar tooth, so that they did not disturb my diagnosis of gouty headache. The tooth was soon relieved but the cranial pain held on. Antipyrine quieted the headache but caused unbearable nausea.

Just then appeared in *La Semaine Médicale*, Germain Seé's recommendation to give with antipyrine, an equal bulk of the bi-carbonate of soda as a certain means of avoiding nausea. This proved a success, and disposed of all

tendency to nausea in this case and several other cases. In the patient in question, however, the drug soon became inert. The caffeine, bromo-caffeine, likewise guarana of which caffeine is the active principle, were never of any use to her. Cannabis indica is perfectly negative and the patient is so annoyingly familiar with every other known remedy for the headache and the inefficacy of all of these, that in her paroxysms of pain you will not wonder, notwithstanding I have a strong prejudice against the drug, that I have occasionally resorted to morphia, which of course, relieves the pain, yet is invariably followed by severe vomiting. I did not try antifebrine because by this time I had lost faith in remedies of that sort for this patient.

When she came out of this storm I found that the former effectual treatment by cardiac tonics and alkalies had utterly lost its power. This fact together with absence of relief from medicines which benefit other forms of headache, still farther convinced me that gout and not neuralgia was the root of the ailment and I finally resorted to absolutely anti-arthritic treatment—wine of colchicum and iodide of potassium—the diet being carefully regulated. That I did not do so before, in view of my diagnosis, was due to my hope that the cardiac tonic and alkalies would prove effectual, as indeed they decidedly did for six months. Almost at once after beginning to take the remedies for gout the patient experienced a heretofore unknown sense of relief. Time is needed to prove that she has been wholly relieved of her suffering, but she is already in a condition of comfort to which she has long been a stranger, and although at times she is conscious of pain, it is so mild in character she does not consider it of moment and I hope it is due to nothing more than nerve-memory. Twice weekly, I give her a strong secondary galvanic current. This is acting well as a nerve tonic and the patient is more vigorous in every sense. She is taking eighteen drops of the wine of colchicum root and eight grains of the potash, three times daily.[1]

A prominent feature in the symptoms of this case has been the weak heart; careful stimulation of which contributed largely to the well-being of my patient, during the six months of almost entire freedom from severe pain.

This point merits especial mention. I believe we neglect the heart in many cases in which if this organ were stimuiated, patients would sooner reach a condition of comfort. In the patient in question, notwithstanding she has been a victim of pain for thirty years, during which she has received such a variety of treatment that it is difficult to name a remedy with which she is not familiar, and in spite of having passed through the hands of very many physicians, her heart has never before been carefully examined nor directly treated.

The heart being the active agent in the general circulation, distant localities suffer when this organ becomes feeble, in the same sense as would the outlying beds of a garden, the source of whose supply of water we may suppose to be a centrally located pump, if the pump lost power and became unable to give the distant beds their needed supply. In short, the necessity of aiding the heart in every case of chronic headache, is the one point which I would especially emphasize, particularly because I find it universally neglected in the books. In-

[1] Four weeks later: The slight pain which persisted after the beginning of the anti-arthritic treatment has now disappeared.

deed, there are few ailments of any nature, in treating which it would be unwise to aid the heart. But, it is, I believe, too apt to be the case, if the physician find a regular cardiac beat and no murmur, that he pronounces, or deems, the organ in a normal condition, when there may be a lack of cardiac energy as shown by the radial pulse and by the existing relation of the heart-sounds to each other.

It is but recently that I treated a case of chronic hyperæmia and catarrh of the pharynx, with distended veins and hypertrophy of the follicles, in which case I also found a weak heart and a gentle systolic murmur. Until I resorted to cardiac stimulation I made but slow progress in relieving the catarrhal ailment, which, however, decreased rapidly so soon as I began to aid the heart, the condition of which undoubtedly had much to do with the pharyngitis. This suggests a second case of headache of long duration in which the pain was located strictly over the occiput. The anti-neuralgic gamut of remedies, the patient told me, had been used in vain. He was frequently unfitted for his work, which was wholly intellectual. His sleep had long been irregular and insufficient. His moods became despondent. He was never free from pain, which, however, varied in degree. This is the brief history of many years.

I found cold hands, injected conjunctivæ, a muddy skin. Examining the heart, though it was free from murmur and pulsated with regularity, its tones and impulse were not sufficiently strong for a well-developed man, and the first sound was decidedly weaker than the second. I at once prescribed the tincture of strophanthus four times daily, the fourth dose being larger than the other three and to be taken at bedtime. Very soon the chronic occipital pain was relieved and up to this time the remedy has been efficient. According to various writers occipital headache is not understood. Nevertheless, it seems to me when cause and effect are as clearly shown and as easily relieved as in the case I have just cited, that we do get some idea of the conditions whose united result is headache. Still, even here, why the pain should confine itself strictly to the occiput, is, I must admit, a *quid ignotum*. I have, however, sometimes questioned whether the sudden and almost right-angled curves in the vertebral arteries just before they unite to form the basilar artery, are not a factor in occipital pain when the heart is weak or tired. At any rate the pain is almost wholly in the zone of these four abrupt turns in the two vertebral arteries.

Could it be vaso-motor pain due to pressure caused in these arteries by the resistance offered to the circulation by the arterial curves, plus the local accumulation of blood due to the weakened *vis a tergo* resulting from a feeble heart? There is much to learn here, and I advance these theories with great diffidence. Erb[1] says: "In regard to the etiology of this form of headache but little is known;" and I have at present a case under treatment which is very puzzling.

The patient dates his neuralgia as far back as his student days, when he worked incessantly and neglected general care of his health. His daily life is spent in severe brain work. He passes at least eight hours daily in a chemical laboratory, which might lead one to suppose gases and odors to be one element in his headache, from which he says he has not once been free for sixteen years. But, inasmuch as during the long vacation, which is lived largely in the open

[1] Ziemssen's Cyclop. Vol. XI.

air in a very high locality, the pain continues without intermittence, the natural inference is that laboratory work has little or no influence in the causation of it. Moreover, the headaches began years before the patient became a chemist.

This seems one of those cases in which, as Erb says, no anatomical cause of pain can be shown to exist, and thus far it has defeated me. It need not be said that medicines, electricity, regimen, gymnastics, etc., have been vainly tried. Cannabis indica, antipyrine, antifebrine, galvanism, have no effect whatever. I found that friction over the occiput and upper portion of the nape of the neck afforded decided relief. The patient continued the procedure, but finally thought that so much movement increased the pain, and it was abandoned.

He cannot sleep upon the back without causing intense exacerbation of the pain, and is obliged to use an extremely thin pillow, for, when lying upon his side, the slightest bend of the neck aggravates the pain. The increase of pain in the dorsal decubitus and by a bend in the neck is the possible result of retarding the circulation. Temporary relief from friction was the probable consequence of lessening the pressure in subjacent blood-vessels. These are points which seem to support my theory in relation to the outcome of the sudden slowing of the blood-current by the curves in the vertebral arteries.

Cardiac tonics have as yet produced no result, but have not been used long enough to prove their lack of benefit.

Blisters, so highly recommended by Anstie and others, have not been tried, because the patient said he preferred the disease. The cannabis indica cure of this form of headache, so vaunted by Stephen Mackenzie in *Braithwaite's Retrospect* for July last, and before him by Anstie, Reynolds and other writers, has been pushed to intoxicating doses, and, excepting exhilaration, without apparent effect of any nature. This is the most obstinate case of headache in all my experience. During his youth the patient was favored with intervals of relief; but, let me recall his statement, that for *sixteen* years there has not been a single intermission in the pain which, in short, has now been so long a habit with him that he is quite able to be natural and normal in manner and daily life. He has an irritable and therefore a sensitive heart, otherwise his general functions are undisturbed. His appetite is always good, but he has a look of chronic fatigue.

One thing that should not be forgotten is, that he is a smoker, but smokes moderately. I found that early in the day he was very dependent upon his tobacco, so much so that unless he had previously smoked he could not deliver a morning lecture without dizziness. For that reason I requested him to delay his first smoke by half-hours until it became noon; the patient, meanwhile, being obliged to fight a battle in which he finally conquered, to his benefit. I cannot believe this a tobacco headache, for it began long before the patient smoked at all, and used to be more intense than it now is. The patient's eyes have been often and carefully examined by able occulists, and every defect corrected by the proper glasses.

He is not in any sense a hypochondriac, and I believe the case to be perfectly honest, so much so, indeed, as to give me the uncomfortable suspicion that this headache is my master—thus far at any rate. It can, however, be said that the pain, although persistent, seems to be wearing away, for it is less intense than it formerly was.

One important feature in this case should be mentioned: I have quite recently been led to surmise that mental worry has been an influence in this prolonged headache, for it has become apparent that a decrease in the intensity of the pain has coincided with a gradually increasing relief from the cause of the worry.

The cases I have chosen in illustration of my subject do not seem to belong to the class of merely peripheral neuralgias, and for that reason are the more baffling. I should have been glad to have quoted largely from writers on nervous affections, but, so far as my experience goes, in the domain of inveterate headache the books were well-nigh useless. I hope, however, to learn something from those who speak on my paper. Something more useful, at all events, than Strümpel's [1] final remark on headaches which defy every remedy.

He calmly says: '' Still the patient has the comfort of knowing that after years and decades, the affection, when old age is reached, not rarely ceases of itself.' "—*Boston Med. and Surg. Journal*, July 26, 1888.

Color-Blindness.

That an imperfect knowledge of the names of colors has led to erroneous conclusions in estimates made of the numbers of the color-blind has long been known. Virchow, at the Amsterdam Medical Congress in 1879, pointed out that many educated persons—such, for example, as medical students—failed to distinguish colors by name; and it is believed by some that the numerous names of colors that are now familiar to all of us, as compared with the somewhat limited vocabulary of color terms used by Homer and the ancient writers, are merely the result of education; though a few still hold that the color-sense or faculty has itself undergone development in the course of many centuries. The Nubians tested by Virchow were unable to distinguish blue from red by name, though they were perfectly able to separate them from each other. Joy Jeffries, again, remarks, in his Report on Color-blindness, that very few boys of the grammar or higher schools are familiar with the color-names of even the primary colors, and that still less can they correctly apply those names they do remember when shown colored objects. Some interesting experiments have recently been made on this point at the Board School-room, Berner street, E., the result corroborating the view that the inability to distinguish colors is more frequently due to defective knowledge than to defective sight. Seven cards, colored red, yellow, green, blue, violet, black and white, were placed on a table, and 100 boys of Standards 3, 4, 5 and 6 were brought in one by one, and were asked to name: first, the colors in order; secondly, to point out any color named; and, thirdly, to name the colors on the cards as they were turned up, after being placed color downwards and shuffled. The result of the test was as follows: 1. Number of boys who named all 7 colors correctly, 25. 2. Number of boys who named 6 colors correctly, 55. 3. Number of boys who named 5, 4 or 3 colors correctly, 17. 4. Number of boys who named 2 colors correctly, 1. 5. Number of boys who named no colors correctly, 2. Class 1 were, of course, satisfactory. Class 2 were all wrong in the violet color; but after five minutes' teaching, they picked out that color as correctly as any other. The same was the case with Class 3,

[1] Specielle Path. u. Therapie.

except that they required more time to teach them. In all these cases the mistakes evidently arose from ignorance of the names of the colors, and not from defects of sight. There remained only the boys of Classes 4 and 5, three in number. The first of these three appeared to be unable to distinguish black and white from any other colors; but at a subsequent examination he recognized them easily, and explained that he did not at first understand that he was to name them as colors. The second boy of the three appeared to have no idea of color and might easily have been supposed to be color-blind; but on re-examination he named all the seven correctly without hesitation. He said that he did not think he was required to name the colors of the cards as they lay there, but to guess the colors on the undermost side. The last was the most remarkable of the lot. He knew the names of the colors, but seemed to think it did not at all matter what name he gave to any particular color, calling black white and red green, etc., in a haphazard sort of way that was startling, and for a long time he looked like a case of genuine color-blindness. But after a number of careful examinations it was noticed that he always called black white, showing that he was able to distinguish black from the others, though he named it incorrectly; and when he was told that the card was black, he afterwards picked it out or named it at once. He was next taught to distinguish the red in a short time, and after a few lessons he knew all the above colors as well as the other boys did. He said he had always called black white, and that whenever white was mentioned, it had always given him the idea of black. As for the other colors, he had never been particular to name them or think about them exactly, supposing it to be a matter of little importance. The total result of the examination was that not one boy of the hundred tried showed any suspicion of color-blindness. Three shades each of red, green, pink and stone color were then placed on the desk, and fifty boys of Standard 1, averaging seven years of age, were brought in one by one and asked to point out the darkest shade of each color, or the lightest shade or the middle shade. Of the fifty examined, thirty-eight answered correctly and promptly at once, and the other twelve learnt to do so in the course of the morning. The Second Standard test was the following: A book was placed on the desk, and each boy was told that there was a card in it of the same color as a card shown to him, and he was then asked to name the color of the card in the book. The number examined was fifty-two. The number right the first time of asking was thirty-four, and the others found no difficulty in the matter after practising about an hour. Altogether; 200 boys were examined, and every one of them can now distinguish all the ordinary colors without the least difficulty.—*Lancet*, June 30, 1888.

The Connection between Diseases of the Eye and Diseases of the Nose.

NIEDEN (*Archives of Ophthalmology*, xvi, 4) considers that one of the chief causes of anisometropia lies in the general asymmetry of the orbital and nasal region and cavities which is so often found to exist. He also recognizes the fact that various affections of the eye are due to a previously diseased condition of the nasal mucous membrane. Some of these processes are propagated by direct intermediation of the nasal portion of the lachrymal canal, and so introduce

infectious inflammation of the neighboring lining membranes that are similarly constructed. Reflex processes, excited by the nerves of the nasal mucous membrane, also give rise to reflex sympathetic affections in the eye and its neighborhood. These reflex processes depend upon the anatomical fact that both cavities are supplied by twigs of the first and second trigeminal branches of the naso-ciliary and spheno-palatine nerves. They can also be explained by the associated action of the ciliary and rhinic ganglia. Nieden thinks that chronic inflammation of the nasal mucous membrane, in which a thin secretion desiccates upon the surface in the shape of brown or greenish crusts of dried mucous, which readily decompose and give rise to the repulsive characteristic odor, together with the atrophy of the turbinated bones, are considerably influenced by the absence of the constant though slight moistening of the nasal passages normally excited by every motion of the eyelids. The development of chronic rhinitis into ozena is largely due to the absence of this regular lachrymal secretion. He considers that phlyctenular keratitis almost invariably has its origin in a disease of the nose, and that the trouble can only be permanently and certainly relieved when simultaneously the pathological condition of the diseased mucous membrane of the nose has been treated and restored to its normal state. Nieden concludes his paper by reporting in detail four very interesting cases: The *first* was a case of polypus, starting from the upper portion of the nostrils, first perforating the median left and then the right orbital wall, and causing bilateral exophthalmus, and finally death, with cerebral symptoms. The *second* case was one of myxosarcoma of the mucosa of the superior nasal sinus, rupture of the ethmoid plate, extension into the cranial cavity, and thence to the base of the brain and into both orbits, with neuro-retinitis, bilateral exophthalmus, amaurosis and death in coma. The *third* was a case of chronic empyema of the right frontal sinus and ethmoid labyrinth, with rupture into the right orbit, dislocation of the eyeball outward, and direct communication of the abscess with the nasal antrum. The *fourth* was a case of diffuse hypertrophy of the nasal mucous membrane, empyema of the maxillary sinus, infra-orbital neuralgia, right blepharospasm, with a cure following evacuation of the abscess and cleansing of the nasal and maxillary cavities.— *N. Y. Medical Journal*, July 14, 1888.

Peculiar Febrile Diseases in Glasgow.

Dr. Russell, medical officer of health for Glasgow, has now issued a complete history of the peculiar outbreak of febrile disease which took place in March last in St. Mary's Roman Catholic Industrial School in that city, and he includes in it a note on the clinical aspect of the disease by Dr. Samson Gemmell. The disease commenced on March 2, when a boy, complaining of headache, was sent to bed in his dormitory. Next morning, when he rose, he was noticed to be unsteady, and was hence sent to the sick-room, where he died at 8 A.M. Four other boys died with much the same rapidity, generally after becoming unconscious, by the 8th of the month; and then followed no less than thirty-one attacks between that day and the 13th. With intervals between two fresh batches of attacks, 66 boys and 2 girls in all sickened, out of a total of 207 boys and 194 girls, the only girls attacked being two who worked in a kitchen common to the two schools. Amongst the more prominent symptoms were headache, nausea and vomiting, pain down one or both sides, a temperature of from 102°

to 105° F., pneumonia in seventeen cases, herpes and certain spots about the skin, such as purpuric and other patches. The disease was practically limited to one of two kindred institutes—namely, the boys' school; and it was found that no special set of boys was exempt, whether age, condition, habits, or location are considered. The schools lie near an old burial ground, where many who died of cholera in 1848 were interred, and which has been used for recent interments until it is both greatly overcrowded by bodies and in a state of rank disorder. The schools were remarkable for general unhealthiness, for their unwholesome position, for overcrowding, and for maintained prevalence of infectious disease; the boys' school being in almost all respects the worse of the two. Pneumonia and chronic lung disease were also very constantly prevalent, especially amongst the boys, the disease being associated with deficient air space both within and without; and in the face of these conditions, such ameliorations as were carried out had, practically, no effect in improving the standard of health. An institution thus unhealthy serves to receive the waifs of a large city, tainted with a proclivity to scrofula, and generally of low vitality; and amongst the causes of death that usually prevail there, that from pulmonary mischief has been enormous. After considering the special outbreak clinically and etiologically, one is bound to assume, with Dr. Russell, that the disease in question bore much resemblance to a specific febrile affection tending to implication of the lungs and to pneumonia. The post-mortem appearances also went to indicate a poison much resembling that of enteric fever, and, as is pointed out in the report, much is already known that suggests a causal affinity between certain forms of pneumonia and enteric fever. The prevalence of an epidemic pneumonia is also now generally recognized, the disease being at times of a pythogenic type. Dr. Finlayson, who saw some of the cases, believed them to be instances of epidemic or infectious pneumonia; Professor Gairdner was inclined to style them influenza of a malignant type; but Dr. Gemmell regarded the clinical features as pointing not so much to the epidemic type of pneumonia as to the same disease having a local origin, and telling with exceptional severity upon boys of low constitutional vigor living under unwholesome circumstances. The possibility of a chemical poison due to changes in food was excluded, because both the girls' school and the boys' school were dealt with alike as regards food supplies, and the only two girls affected had been working in the boys' school. A number of somewhat similar occurrences in other places are recorded by Dr. Russell in the report he has prepared; but whilst the story is interesting in the extreme, we find much the same difficulty that he does in distinctly assigning to the disease any special name, and in expressing a definite opinion as to the precise condition by which it was induced. There seems, however, little doubt that the condition in question was either included in, or brought about as the result of, those grave sanitary defects under which the children of this school have been aggregated together, as it is to be hoped that those who are responsible for this condition of things will forthwith take the proper measures to secure their remedy.—*Lancet*, July 14, 1888.

Ocular Symptoms Due to Nasal Disease.

GRADLE (*Archives of Ophthalmology*, xvi, 4) presents his observations in the following order: 1. Lachrymation is not infrequently the result of nasal

disease, without primary lesion of the tear-passage or of the eye. In some instances the persistent and annoying epiphora follows an acute attack of nasal catarrh. In other cases the lachrymation varies with the season, and is preceded by the signs of irritation of the front part of the nasal passages. It is probable that the flow of tears is increased in a reflex manner by the nasal irritation. 2. A marked type of ocular trouble of nasal origin is presented by a combination of a feeling of fulness of the lids and itching, with or without lachrymation, sometimes with more or less pain in the eyes. The ocular symptoms may be intermittent, remittent or persisting for weeks or months. The diagnosis of nasal reflex is strengthened in such cases by the fact that the correction of any existing refractive anomaly is insufficient to remove the annoyance. Whenever in such instances the eye-strain is persisted in, there usually follows a congested condition of the conjunctiva. In all these cases the nasal disease consists of irritability of the blood-vessels in and beneath the mucous membrane on the anterior end of the inferior and middle turbinated bones, and in rare cases the upper and forward part of the septum. Distant reflexes, which sometimes involve the eyes, may arise from almost any part of a diseased nose or throat, but the great majority of nasal reflexes depend on the anomaly termed "irritable nose," with sudden engorgement of the nasal blood-vessels. In some instances the irritability of the nose depends upon the presence of some other lesion. Polypi may play this *rôle* of primary factor, but more often it is a catarrhal inflammation of the nares. In these instances a four per cent. spray of nitrate of silver once a day, preceded by a spray of cocaine, gives relief to the patient. Where there is much discharge, it is better to remove it first by means of a douche of bicarbonate of sodium. Where no cause can be found for the nasal irritability, the only means of relief consists in the destruction of the cavernous tissue, and where the vascular tissue is not much hypertrophied this may be done by chromic acid. The galvano-cautery is more thorough in its action, provided a strong current is employed. 3. Another type of ocular disturbance, also characterized by itching and discomfort in the lids, is peculiar in the periodicity of the attack. The trouble begins between May and July every year, and terminates promptly with the first cold days of autumn. A peculiar conjunctival lesion forms during the course of this affection, appearing first as a slight follicular enlargement, and ending in the formation of large, flat, yellowish follicular granules. 4. A somewhat different type of symptoms results in those instances in which there is less itching of the lids, while photophobia, with or without pain, is more prominent. Such eyes are often bloodshot. There may be more or less asthenopia and lachrymation. 5. In other cases there may be a more or less marked injection of the circumcorneal vessels. 6. Sudden congestion of the lids, varying from an erysipelatoid condition to a mere superficial erythema, is not very uncommon in patients with irritable noses. The attack resembles genuine erysipelas, but it does not spread, and, as a rule, is not accompanied by much rise in temperature. It may last from two to six days, and is followed by more or less desquamation. After its first occurrence it is apt to return at intervals of months or years. 7. In other instances vaso-motor reflexes occur in the form of sudden œdema of the lids. The attack lasts only a few hours, or at the most a day.—*New York Medical Journal*, July 14, 1888.

Analysis of Five Hundred Consecutive Cases of Acute Rheumatism.

Dr. H. Walter Syers, late medical registrar, Westminster Hospital, in a communication to the *Lancet*, June 30, 1888, says that every case of acute rheumatism admitted to the Westminster Hospital during the last seven years has been carefully investigated with especial reference to the inheritance of rheumatism, nervous diseases, and of phthisis. Attention has also been given to the subject of heart lesion. The analysis given below is based, he says, upon an examination of 500 consecutive cases, the history having been obtained for the first four years by Mr. Hebbert, medical registrar during that period, and continued by Dr. Syers himself.

Sex.—There were 235 males and 265 females.

Age.—Under five years, 1; from five to ten, 26; ten to twenty, 188; twenty to thirty, 154; thirty to forty, 90; forty to fifty, 29; fifty to sixty, 10; over sixty, 2.

Inheritance.—(*a*) There was a history of *rheumatism* in near relatives of the patient (father, mother, brother, sister, uncle, aunt) in 193 cases, or in 38.6 per cent. of the whole number admitted. A history of acute rheumatism in members of the family similarly related to the patient was found in 107 cases, or in 21.54 per cent. of the whole number. A history of acute rheumatism occurring in either parent was found in 46 cases, or in 9.2 per cent. of the whole. Dr. Syers has further ascertained the number of cases with acute rheumatism inheritance occurring at each period, and has compared these numbers with the numbers representing the cases occurring at the corresponding periods. The result is as follows:

Age.	Total.	Acute rheumatism inheritance.
Under 5	1	1
5 to 10	26	7=1 in 3.7
10 to 20	188	62=1 in 3.03
20 to 30	154	24=1 in 6.4
30 to 40	90	9=1 in 10
40 to 50	29	3=1 in 9.6
50 to 60	10	1=1 in 10
Over 60	2	0

(*b*) *Gout.*—A family history of gout was obtained in only 38 cases, 7.6 per cent. of the whole number.

(*c*) *Neurosis.*—Of nervous disease in the family history I found 80 cases, or 16 per cent. Of these 80 cases, a family history of insanity was obtained in 39 cases, and a history of epilepsy in 22 cases.

(*d*) *Phthisis.*—In 83 cases (16.6 per cent. of the whole number) there was a family history of phthisis found. Thus the percentage of cases owning a phthisical family history is a fraction greater than that representing a neurotic inheritance.

Heart.—The cases complicated with heart affection were 267, or 53.4 per cent. of the whole. Of these, there were 48 cases (17.9 per cent.) of pericarditis, 83 (31 per cent.) of endocarditis, and 136 cases (50.9 per cent.) of combined endocarditis and pericarditis. In 160 cases it was possible to ascertain the age at which the heart affection occurred, and the result is as follows: Under five years of age, 0; five to ten, 14; ten to twenty, 87; twenty to thirty, 37; thirty to forty, 16; forty to fifty, 4; fifty to sixty, 2; over sixty, 0. The percentages of

the numbers admitted with heart affection (for the first time) at the corresponding ages being as follows: Under five years of age, 0; five to ten, 51.85; ten to twenty, 46.52; twenty to thirty, 24.02; thirty to forty, 17.7; forty to fifty, 13.8; fifty to sixty, 20; over sixty, 0.

Only in 19 cases was the occurrence of *chorea* noted in the history of the patient, either before admission, during the attack of acute rheumatism, or during convalescence. Of these 19 cases, 12 were females and 7 males. In 7 cases the chorea was followed by acute rheumatism; in 4 cases the attack of chorea occurred during convalescence; in the remaining 8 cases the chorea and the rheumatism were separated by an interval varying from several months to several years.

Season.—From January to March, 146 case were admitted, or 29.2 per cent.; from April to June, 92 cases, or 18.4 per cent.; from July to September, 120 cases, or 24 per cent.; and from October to December, 142 cases, or 28.4 per cent. From April to September, 205 cases, or 41 per cent., were admitted; from October to March, 295, or 59 per cent. In January were admitted 54 cases; in February, 48; March, 44; April, 32; May, 28; June, 32; July, 28; August, 45; September, 47; October, 56; November, 34; December, 52; total, 500.

Mortality.—The total number of deaths was 15, or 3 per cent. Of males 9 died, and 6 females. There were 2 deaths with hyperpyrexia, the temperatures attained being respectively 108.8° and 107.2°; 1 death resulted from ulcerative endocarditis, 5 from pericarditis and endocarditis, 1 from pericarditis and pneumonia, 1 from pneumonia, 2 from collapse, and 3 from old-standing morbus cordis.

Acute Atrophy of the Liver.

At the meeting of the Bradford Medico-Chirurgical Society, April 3, 1888, Dr. Woods related two cases of this disease.

Case I.—On January 11, 1887, a temperate man, 25 years old, who had never suffered from syphilis, and who had spent all his life in England, was admitted to hospital apparently suffering from a slight attack of jaundice. The skin was yellow, the urine saffron-colored, and the patient was constipated. Pulse 80, temperature 99°. No tenderness over the liver, but diminished area of dulness on percussion. The bowels were easily moved by aperient medicine, and no special symptoms presented themselves till January 25, when the bowels were relaxed and motions dark colored. The urine was now of a dark-brown color; it was tested for blood and bile acids with negative results. Pulse 88, temperature 99.8°. The patient, at this date (fourteen days in hospital), began to wander a little, becoming delirious on the 26th, and gradually passing into a state of coma, well marked on the 28th, which lasted till next day, when he died. On *post-mortem* examination nothing abnormal was found in the head or thorax; the liver was much reduced in size, especially the left lobe, the weight being only twenty-seven ounces. The spleen weighed seven ounces, and was normal in appearance.

Case II.—A man, 39 years old, of intemperate habits, who had suffered from syphilis and intermittent fever, and had served fourteen years in India in the army, was admitted February 28, 1888, suffering from jaundice. The skin was yellow, the urine dark colored, the bowels obstinately confined; all food was

vomited as soon as taken; no tenderness over liver; area of liver dulness diminished. Pulse 68, temperature normal. Bowels remained confined until March 3, when a dark-colored liquid motion was passed; vomiting was now very distressing, the vomiting matter being dark-colored. The urine was brownish in color, depositing brown sediment. It was tested for albumin, blood, and bile acids with negative results. Pulse 110, temperature 99.6°. Five days after admission the patient became violently delirious, but lapsed into semi-unconsciousness in the afternoon, becoming comatose next morning, and remained in this condition until he died at noon on the 5th. On *post-mortem* examination, nothing abnormal was found in the head or chest; the spleen weighed seven ounces. The intestines contained bile. The liver was small and shrunken, and weighed twenty-six ounces; it was of a deep yellow color, passing here and there into dark red patches. Its tissue was very friable. On microscopic examination the liver-cells were entirely destroyed, only a few nuclei being left here and there. The liver was reduced to fibrous tissue radiating from the portal spaces, in which it was most abundant, and near which some agglomerations of nuclei were seen. Fat globules and granular *débris* were present in large amount. Leucin and tyrosin could easily be demonstrated. There were cases of jaundice without obstruction, and the clinical features were not unlike those present in cases of poisoning by alkaloids, such as curare, muscarin, etc. If the secreting portion of the liver was impaired, as in acute yellow atrophy, whatever bile was secreted was of inferior quality, and peptone, and leucomaines were allowed to enter the circulation. The bile itself was absorbed into the blood, and stained the tissues, never, however, to any great extent. In jaundice, with obstruction of the bile-duct, bile did not enter the intestine, and, therefore, did not act there on the peptones and leucomaines, but, being rapidly absorbed into the blood, acted there as an antidote to the leucomaines, preventing them from producing the alarming symptoms observed in cases of jaundice, where no obstruction existed, but where, owing to impaired action of the liver, bile, incapable of exercising its proper functions, was secreted.

Dr. A. Bronner, in discussing the cases, recorded a similar case which he had seen by the courtesy of Mr. J. Appleyard. The patient, a remarkably tall and strong man, about 35 years of age, who had always lived a most temperate life, and had always been perfectly healthy (with the exception of a very slight mitral *bruit*), had been very much depressed some weeks before the first definite symptoms. Having received a chill at a railway station, and the same evening having eaten some sausage, the next morning diarrhea set in and slight jaundice, the urine also becoming distinctly tinged. This was looked upon as an ordinary case of jaundice consequent upon gastro-duodenal catarrh, and under treatment the bile-pigment disappeared from the urine, and the jaundice almost entirely disappeared. The patient got up, felt much better, and nothing whatever occurred to point to the true nature of the case. On the evening of the eighth day after the appearance of jaundice, the patient went to bed, complaining of very severe headache. In the morning he was in a state of excited delirium, tearing down the bed-curtains, etc., recognizing nobody. In the course of the day he became quieter, lying in bed with his hand to his head, as though in great pain. There were no convulsions. The pupils were dilated, and did not react to light.

The urine became highly icteric, and there was a dirty-yellow deposit in it, which microscopically consisted of detritus of cells. No albumin. The urine was tested for leucin and tyrosin, but no crystals were found. The spleen was not found enlarged. There was no enlargement or diminution of the area of dulness of the liver. No hemorrhages from stomach or bowels, and no petechiæ. The jaundice increased in the course of the day, and the patient gradually became more comatose, and died at 4 A.M., thirty hours from the commencement of the headache. Only a partial necropsy was allowed. There were hemorrhages in the omentum and the bowels, also in the kidneys, where they presented the wedge shape of infarction on section. The liver was a soft, pulpy mass, which could be easily torn with the fingers. Under the microscope the liver structure was almost obliterated. The field of vision was covered with detritus masses, and with fat-globules. Professor Greenfield, of Edinburgh, who examined some of the liver and kidney, pronounced the case to be one of undoubted acute atrophy of the liver. There had never been any complaint of pain or uneasiness in the region of the liver.—*British Med. Journal*, June 23, 1888.

Frequency of Rheumatic Family Histories amongst Non-Rheumatic Patients.

In a communication in the *Lancet*, July 21, 1888, DR. ARCHIBALD E. GARROD, and MR. E. HUNT COOKE, give their results in an attempt to determine the frequency of rheumatic family histories amongst non-rheumatic patients. It is universally admitted, they say, that rheumatism is an extreme hereditary disease, and the frequent occurrence of certain morbid conditions, such as chorea and the erythemata, in members of rheumatic families, is rightly held to afford a powerful argument in favor of the close relationship of these diseases to rheumatism. They think, however, that the statistics bearing upon this point lose much of their value from the absence of any standard with which they may be compared; and until we can form an idea of the proportion of non-rheumatic cases in which such histories are met with we can form no idea how far the average is exceeded in any particular instance. It was with a view to the construction of such a standard that the present investigation was undertaken. It must be borne in mind, they say, that the percentage obtained will be in direct proportion to the prevalence of rheumatism in the area from which the patients are drawn, and will also depend upon the circumstances of the patients, and therefore that their statistics, being based upon information supplied by casualty patients at St. Bartholomew's Hospital, will, at the most, only hold good for the lower orders of London. Moreover, since information derived from such sources is notoriously untrustworthy, they admit that the results obtained must necessarily be merely approximate, but that they can at least pretend to an equal degree of accuracy with those with which they are intended to be compared. With a view to the removal, as far as possible, of the sources of error, they confined their inquiries to the immediate families of the patients (parents, brothers and sisters), and have rejected all except distinct histories of rheumatic fever—a disease which usually leaves a strong impression upon the minds of those who have suffered from it, since it involves confinement to bed or a more or less prolonged stay in hospital. The exclusion of the less severe forms of rheumatism

must necessarily tend to lower the percentages, as also will the ignorance amongst the patient of the illness from which their parents suffered in the earlier years.

Of 500 patients who had not themselves suffered from rheumatic fever, and who came to the hospital on account of ailments having no recognized relation to rheumatism, they found that 105, or 21 per cent., gave histories of rheumatic fever in their immediate families. Of these, 40 who applied for treatment for tonsillitis should perhaps be excluded, since there is apparently some connection between this condition and rheumatism. The exclusion of these reduces the percentage to 19.78. The examination of separate groups of cases tends to confirm the accuracy of this result, for of the 105 sufferers from dyspepsia, 23, or 22.3 per cent., gave family histories of rheumatic fever, and of those who came on account of coughs of various kinds, 106 in all, 22, or 20.7 per cent., gave similar histories. Among the 40 cases of tonsillitis the percentage was much higher, reaching 35 per cent., and this fact seems to lend considerable support to the view which connects this condition with rheumatism. In addition to these 500, they obtained the family history of 100 other patients who had at some period of their lives suffered from rheumatic fever, and in 35 of these there was rheumatic heredity, a percentage identical with that obtained from the tonsillitis cases; whilst in 80 patients who came under treatment for chorea there was a definite family history of rheumatic fever in 32.5 per cent.

To sum up, these statistics indicate that, whereas about 20 per cent. of the patients who present themselves at London hospitals suffering from morbid conditions which stand in no recognized relation to rheumatism have family histories of rheumatic fever, amongst those who have themselves suffered from rheumatism or allied diseases, such histories are obtained in some 30 to 35 per cent. in each instance; however, considerable allowance must be made for faulty and inaccurate histories.

The Diagnosis and Treatment of Ulcer of the Stomach.

Professor Gerhardt, in an address delivered before the Berlin Medical Society said, at the commencement of his address, that catarrh of the stomach, which formerly took the place of a diagnosis, was now a rare disease. Cardialgia, which had formerly as a functional disease occupied a very lonely position, had now got nervous dyspepsia and incontinence of the pylorus as associates. In place of the anatomical conception of a disease the physiological had rather come to the front. It was known that ulcers of the stomach healed very quickly, and it had been repeatedly shown that portions of mucous membrane could be removed from the human stomach without any permanent ill effects. In gastric ulcer we had, he said, not alone to deal with a necrotic process arising from auto-digestion, but with a chronic ulcer, and in this disposition to chronicity lay a distinguishing factor as opposed to the loss of substance. A third factor was mostly to be sought in the action and characters of the gastric juices. Only in a few cases, in old callous gastric ulcers, for example, could the reason for the permanency be found in the structure of the tissues.

In the majority of cases he said it was some change in the contents of the stomach which acted on its walls and gave origin to the continuance of the

ulcer. Injuries from medicines such as tartarized antimony and salicylic acid were to be taken into account, and so were forms of fungi, as also a certain hyperacidity of the contents of the stomach. A great danger to the patient lay in the bleeding the ulcers gave rise to. In his statistics quoted at Würzburg bleeding took place in 47 per cent. of the cases. Lebert, in 104 cases, had only remarked its absence in 22. The hemorrhage did not always take place from the vessels of the stomach itself, but from those of neighboring organs, for old ulcers often had their floor in other organs—most frequently in the pancreas, next in the left lobe of the liver, more rarely in the spleen. Vicarious menstruation could take place even through a healthy gastric mucous membrane, but such occurrences were extremely rare. The absence of any palpable tumor had been adduced as an important negative symptom of gastric ulcer, but he did not place much reliance on that. According to his views four kinds of tumors could be present with gastric ulcer; first, old ulcers with callous margins, which could often be felt through the abdominal walls, or through the left lobe of the liver. Another kind belonged to the pylorus, and was a tumor of indirect origin, from extraordinary thickening of the pyloric muscular tissue. A third kind was circumscribed exudation around perforations, a very rare form. A fourth kind was caused by the crowding of neighboring organs into a large gastric ulcer. In view of all this the examination of the contents of the stomach was very important.

As regards the much discussed hydrochloric acid question, he said he had lately in twenty-four cases of circular ulcer found the reaction normal in seventeen cases, but not normal in seven. Three of these had had hæmatemesis, two were strikingly anæmic individuals in whom the absence of acid reaction was explainable. The hydrochloric acid was occasionally considerably diminished after serious loss of blood. The observations of others agreed with this, and it must be taken as an undoubted fact, he said, that in some cases of gastric ulcer the increase of the hydrochloric acid, which had been generally set up as an absolutely certain sign of the existence of a gastric ulcer, might be wanting.

As to the normal amount of hydrochloric acid in the digesting stomach, he said it varied greatly—between 0.05 and 0.4 per cent. The hydrochloric acid reaction was generally absent in carcinoma, but exceptions were met with. In sixteen cases of carcinoma observed by him the acid reaction was present in two. The duration of the ulcer was sometimes as long as twenty-five or thirty years, with intervals of good health intervening, so that the patient was looked upon as cured. If a disease of the stomach had lasted three years without the formation of a tumor he thought we were justified in assuming the probability of a gastric ulcer. The seat was generally to be determined by the situation of the pain, which was rarely absent in fresh ulcers. The presence of pain was the more valuable for diagnosis when it was not near the xyphoid cartilage, but at a distance away, when it coincided with tenderness on pressure, came on at a fixed time after food, and was worse in certain positions of the body. With contraction of the stomach it was generally at the cardiac end, with dilatation at the pyloric. With tenderness on pressure and the presence of a tumor, one would conclude the case to be one of ulcer of the anterior wall of the somach; with frequent bleeding one in the posterior wall, because tumors in front were more

inclined to perforation, those behind more to hemorrhage. When a patient abstained from food from pain in the stomach, and became thin and reduced in consequence, the disease was more probably ulcer, hardly carcinoma, rarely nervous dyspepsia. In the case of recent ulcer great loss of flesh was rare, but emaciation was often observed in old cases. He regarded weighing of patients as of great importance from a diagnostic point of view.

As regards treatment, diet took the first place, and besides this regard to the etiological condition and the character of the contents of the stomach were of importance. It had been proposed, he said, to feed the patient per rectum, but in many cases this was not practicable, as frequently there was a persistent hypersecretion of gastric acid. In recent cases milk diet often sufficed, but in old ulcers in which structural changes have taken place, milk was frequently not borne at all. Peptones he could not praise. Even if they could be taken, they caused a secretion of gastric juices, as Schiff had shown. In cases of profuse hematemesis and perforation, on the other hand, he said, they were very serviceable per rectum. Peptones were therefore very suitable for cases in which alimentation by the stomach could not be carried out. In many cases a continuous secretion of gastric juice was present; this was diverted from the ulcer by meat or egg diet. Most physicians therefore recommend a diet mainly animal, meat, milk, or eggs. In cases of stenosis of the pylorus in which a tendency to lactic and butyric acid fermentations was present, one was compelled, he said, to give a diet consisting principally of fresh meat, and to avoid the hydrocarbons as much as possible.

As regards drugs, he did not think the use of morphia justifiable except in extreme cases, as under its use the patient was more easily inclined to indulge in errors of diet. In cases of doubtful diagnosis hydrochloric acid was much employed; in cases of anæmia it was advisable in exceptional cases. He had obtained good results with perchloride of iron. Alkalies, he said, had not obtained much repute in the treatment of circular ulcer. Bicarbonate of soda and bismuth were principally employed on account of the property possessed by the latter of covering the mucous membrane of the stomach. It was much more useful to bring the walls continuously into contract with weak alkaline fluids, with the mineral waters of Carlsbad, Ems, Tarasp, etc. The first named had, according to Jaworski's experiments, the property of checking by its steady use the acid secretion, or of converting it into its opposite. Washing out the stomach with solution of common salt, and the treatment by nitrate of silver introduced by G. Johnson were noted, and the frequent good effects of the latter were recognized. Condurango had a favorable influence. The most important advance of recent times he regarded as washing out the stomach. In old cases it was strongly to be recommended, but of those of recent origin there was danger of hemorrhage being set up. Moreover, some patients submitted to it with difficulty. It acted as a reliever of pain, and an excitor of appetite; constipation and dilatation of the stomach ceased, and healing often took place.

The question of definite healing was a very difficult one. He had once had a patient come to thank him one day for curing him of an ulcer of the stomach, and was invited the next day by the patient's regular attendant to the post-mortem examination. On his return journey home the patient had committed

gross errors of diet, and on the day following his ulcer gave way. It was to be noted that patients were frequently weeks and months without pain with the ulcer still present, the pain at once returning on indigestible food being taken. It was, therefore, advisable to extend the treatment until the weight had increased, spontaneous pains had ceased, and tenderness on pressure was no longer present. It was not possible with our present methods to prove a definite cure with absolute certainty.—*Medical Press and Circular*, July 18, 1888.

Asthma.

DR. F. WAYLAND CAMPBELL, Dean and Professor of the Theory and Practice of Medicine in the Faculty of Medicine of the University of Bishop's College, Montreal, in a clinical lecture delivered at the Montreal General Hospital, said: The patient now before you is suffering from spasmodic asthma. When the attack is not present, auscultation does not reveal anything abnormal. During an attack you will hear, on using the stethoscope, whistling and wheezing sounds. Bronchitis and emphysema are often found co-existing with this disease, and when present you will have these characteristic signs. To any student who desires to study fully this disease, I would recommend Hyde Salter's work on asthma. He says that every case of asthma has a climate which will cure it. The trouble is we cannot tell just what climate will suit each case; but it is somewhat singular that the majority of cases seem to do best in the dirty, smoky air of large cities. Hereditary spasmodic asthma is difficult, if not impossible, of cure, though very much can be done to relieve and diminish the frequency of attack. This disease has strange vagaries. Persons may often be all but permanently relieved by changing the house in which they live, but any return to the original place of attack is certain to bring about a recurrence. The chief characteristic is the suddenness of the onset. Occasionally, however, there is some warning, such, for instance, as an unusually large discharge of pale, limpid urine. Then the patient has an extreme sense of suffocation, with tightness and oppression across the chest. He is forced to loosen every particle of clothing, and at times so great is the dyspnœa that he rushes to the window and places his head in a draught of fresh air. If this is not done, he sits upright, resting his arms or elbows on some support. Every muscle of respiration is called into action. We soon have signs of overloading of the venous system, the face cyanosed, lips blue, extremities cold, and pulse small and quick. The great majority of attacks occur during the night, very often at the same hour every night. A hearty meal before retiring is often known to induce an attack, which may end suddenly after lasting a few hours, or it may last a day or more, though the last is seldom. Occasionally a cough sets in towards the close of an attack, but the expectoration is slight, as a rule. The prognosis is favorable, death being a rare occurrence during a fit, as it is termed, of the disease.

The treatment of asthma is divided into treatment of the paroxysm and treatment to prevent a recurrence. In treating asthma it is best always to use single remedies. It would take more time than we have at our disposal to mention even all the drugs which have been found beneficial. To relieve an asthmatic paroxysm, tobacco is one of the best. It is of course very likely that a patient using tobacco for this purpose may acquire a fondness for the weed, but if it is

going to be useful in future attacks, he must not use it as a social comfort, or it will lose its effect. At times a few whiffs of a cigar will stop the paroxysm, but as a rule the smoking must be continued till constitutional effects are manifested by a depressed circulation, cold perspiration and nausea. If the heart is weak this remedy must not be employed; smoking datura tatula is often very useful. Stramonium (smoking the leaves) is also a common remedy. They may be smoked together in a pipe or in cigarettes, or the leaves may be mixed with tobacco and made into cigars. In the same way the leaves of hyoscyamus and belladonna have been found valuable. The most common remedy is saltpetre paper. A saturated solution of nitrate of potassium is prepared, and in this is soaked blotting paper, which is then dried and cut into strips; when lighted, those strips burn slowly, and the patient inhales the smoke. Some advise a very small proportion of arsenic to be added to the saltpetre solution. Cocoa leaves are also advised to be smoked, mixed with ordinary tobacco. The latest remedy is pyridine. This is used in quantities of a drachm, and vaporized on a hot plate in a closed room. It is said to be very useful. Emetics are sometimes found useful, and perhaps the best is tartar emetic. Nitrite of amyl is often very serviceable in relieving a paroxysm. Nitroglycerine (gtt. 1 of a 1 per cent. solution) is also recommended. Sudden fright has been known to instantly cure a paroxysm. Chloral hydrate, where the heart is not diseased or weak, in doses of 15 to 20 grains, is very good; $\frac{1}{4}$ gr. of morphia combined with $\frac{1}{100}$ of a grain of sulphate of atropia will, as a rule, cut short an attack. If frequently used there is the danger of the morphia habit, which is much worse than an attack of asthma, bad as the latter may be; stimulants are bad, and never should be used.

To prevent the return of the disease, there are several useful remedies, and first on the list stands arsenic, which must be continued for several months. Ammonium bromide is well spoken of. The bromides are eliminated by the bronchial mucous membrane, and are believed to exert a local anæsthetic effect. Potassium bromide is also used. Cimicifuga, a plant indigenous to this country, is a remedy not so much used as I think it deserves to be. Quinine may be used both during a paroxysm and afterwards. If an attack is expected, say about one in the morning, a full dose of quinine at nine o'clock the preceding evening will sometimes prevent its coming on, or it may only modify the severity of the attack. It sometimes fails to have any effect. Another remedy introduced during the last few years is grindelia robusta. It is highly spoken of, and may be given in doses of $\frac{1}{2}$ a drachm of the fluid extract several times a day. In some patients who are sufferers from hay asthma or hay fever, there has been recently found hypertrophy of certain portions of the Schneiderian membrane. These hypertrophied points are believed to be potent points of irritation, and their destruction, by means of the galvano-cautery, has been followed by excellent results. This is a very recent advance in the pathology of this disease. Still more recently it has been suggested that possibly, in ordinary asthma, these points of hypertrophy may also exist in the tracheal and bronchial mucous membrane. These points cannot of course be reached by the cautery, but it is suggested that this condition can be remedied by the persistent inhalation for months of the vapor of iodine and carbolic acid. It is theoretically a good practice. I have seen hypertrophied tonsils greatly improved by this inhala-

tion. Attention to diet is important. Indigestible articles must be avoided, and asthmatics must absolutely avoid eating before going to bed.—*Canada Medical Record*, June, 1888.

Gastrolites.

A curious and, as far as is known, unique case of gastrolite is recorded in one of the Dutch journals. A druggist had a circumscribed tumor in the epigastric region, the position of which varied on respiration, and it was tender on pressure. Medicines had no permanent effect upon it. Spleen, liver and kidneys were normal as to position and size. The appetite was very good and the bowels were regular. There was occasional vomiting of a small quantity of fluid containing mucus and bile, but it was almost always free from hydrochloric acid. Nausea was constant, and it was said that hæmatemesis took place; but this was not actually observed. Gradual emaciation occurred, the aspect became cachectic, and indolent swelling of the left supra-clavicular and axillary glands was noticed. The patient was examined under an anæsthetic and the stomach washed out, but exploratory incision was steadily refused. The diagnosis, according to the probabilities, was cancer of the stomach. The case ended fatally, and the autopsy showed that the stomach, which was of normal size, contained a concretion having the outline of the organ and almost filling it. At the pyloric end lay two smaller fragments of the size of hen's eggs. The weight of the tumor was 885 grammes (a little over 28 oz.). It had a strong fæcal odor, but contained no skatol. No nucleus was present. Microscopic examination showed starch granules, cells containing chlorophyl, bundles of vessels, but nothing to determine the animal origin of the concretion. Chemical analysis showed that it contained 0.56 per cent. of nitrogen. It was observed that with the exception of Langenbuch's case, described in 1884, which contained no hair, all the cases observed in the human subject were composed more or less of hair. In the present case, on the other hand, the tumor was identical in constitution with the "food balls" of ruminants, and was unique.—*Medical Press and Circular*, July 18, 1888.

The Distortion of Objects by Disease of the Retina.

Dr. A. D. Williams says, in the *St. Louis Medical and Surgical Journal*, August, 1888: "It is a curious fact that in certain kinds of disease of the retina, external objects are wonderfully distorted. I lately treated a man who was blind in one eye. Very recently an extensive central retinitis developed in the good eye, involving the entire region of the macula lutea. Extensive hemorrhage into the retina had taken place, and the entire retinal area resembled a solid blood-clot. Vision was greatly impaired, but not destroyed. A singular and interesting feature of the impairment consisted in the distortion of the outlines of objects. Looking at a straight perpendicular object, a telegraph pole for instance, the upper third seemed bent to the right at an angle of about 45°. Similarly the right third of a horizontal bar seemed deflected downward at about the same angle. These phenomena were uniform and persistent, having been observed by the patient ever since the retinitis had fully developed. I am not able to give the final result, as the patient disappeared. The prospect, however, was that he would become nearly, if not totally, blind.

"Several years since I treated a man who had double retinitis, involving the region of the macula lutea in each eye, of a specific character. In this case external objects were also greatly distorted. In describing the distortion, the patient stated that in looking up and down the street the telegraph poles seemed to point in all directions—some even seeming to project horizontally across the street, low down, so that, had he not known that they stood upright, he would have 'been afraid to walk the street, for fear of butting against the (to him) horizontal poles!'

"Still another patient I remember, who had received a blow on one eye, which ruptured or injured the retina. This man also complained of the distortion of objects, when viewed with that eye; when, for instance, he would look at a straight object, as the door casing, it appeared as though a piece had been sawed out of one side, about the middle, and had been added to the opposite side. Other distortions were mentioned.

"I have observed a number of similar cases, but these are sufficient to show that in some peculiar forms of retinitis and injuries of the retina very strange distortion of vision results.

"The only rational explanation of these phenomena which I can suggest, and it seems to be the one accepted by those who have given the matter any study, is that the visual histological elements of the retina (rods and bulbs) become displaced by the swelling, and consequently portions of the images of objects are distorted, the distortion being in proportion to the amount of displacement of the elements. Why, if this be the case, the phenomena of distortion are not more frequent and constant in retinitis is difficult to say, unless it be that the disturbance of the elements takes place only under peculiar or unusual conditions."

The Relations of Hysteria to Phthisis.

M. Huchard (*Journal de Médecine*, May 6, 1888) has pointed out the extremely exaggerated symptoms which may be produced by slight pulmonary disease in hysterical subjects. A bronchitis which is pathologically very trifling may produce intense dyspnœa, or orthopnœa, with violent spasmodic cough. A pleurisy with little inflammation or effusion may give rise to an almost suffocating asphyxia. Indeed hemoptysis sometimes arises from a local pulmonary vasomotor spasm. He cites the case of a girl of fourteen, who for two months had had a little hemoptysis every day at about the same hour. There was a little hemianæsthesia of the larynx, and he diagnosed pure hysteria, and was confirmed by the complete disappearance of the symptoms. In another patient, a man with acute rheumatism, there was a sudden attack of severe dyspnœa, lasting for twenty-four hours or more. Endocarditis and myocarditis were suspected, but if present they were very slight, and the symptoms were explained by an attack of hysterical convulsions a few days later. Another group of cases needs notice in which hysteria intervenes in the course of phthisis. It may show itself in the second stage, when the organic symptoms are well established, by inducing a dry, ringing, capricious cough of a peculiar tone; or later in the disease by a sudden loss of voice; or by attacks of hemoptysis accompanying menstruation only; by a pleurodynia; by a constant refusal of food, or by chronic vomiting. Such complications may go on for months without real progress of

the organic disease, and may lead to a prognosis much too unfavorable. There may be a slight dulness at the apices, which is misinterpreted as indicating disease of the lung, and is really due to a slight spasmodic contraction of the muscles on percussion. It would be a mistake to suppose that hysteria tends to produce tuberculosis, or that tuberculosis tends to suppress hysteria. But in a patient who is suffering from both diseases due allowance must be made for the exaggeration of the organic symptoms by the neurotic element.—*Practitioner*, July, 1888.

Relation of Eye Disease to Certain Conditions of the Sexual Organs.

POWER (*Ophthalmic Review*, December, 1887) thinks that the effects of onanism upon the visual organs have been exaggerated, and that the eye symptoms are usually of a functional character, such as amblyopia, muscæ, and failure of accommodation. In some instances serious affection of the optic nerves ensues. In women, when the institution of the menstrual flow is interfered with, the eyes, in common with other organs, are the subject of symptoms attributable to the uterine disorder. In such cases choroidal hemorrhage not infrequently occurs, which enters the vitreous, and vision is seriously impaired. Various forms of keratitis are seen in women suffering from amenorrhœa and dysmenorrhœa. Serous iritis as a concomitant of amenorrhœa and dysmenorrhœa has frequently been observed. Retinal hemorrhage consequent on sudden suppression of the menses has frequently been noted. Paresis of ocular muscles, both external and internal, has been observed in connection with catamenial irregularity. Power holds that menstrual disorders constitute a factor in the development of conical cornea. In pregnant women failure of accommodation is of frequent occurrence, and is usually met with in the later months of pregnancy. Retinal hemorrhages sometimes result from the strain of the severe vomiting of pregnancy. Gravidic retinitis, a condition closely resembling albuminuric retinitis, is not of very infrequent occurrence. In the puerperal state we also meet with septic puerperal embolism and paralysis of the ocular muscles. In the suckling woman failure of the ciliary muscle, keratitis and hypopyon are frequently met with, and are indications of the general exhaustion resulting from prolonged lactation.—*N. Y. Medical Journal*, July 14, 1888.

Liver Tissue Emboli.

The dislodgment of fragments of liver tissue as the result of laceration of that organ, and their passage through the hepatic vein and vena cava up to the right side of the heart, constitutes a very rare form of embolism, of which but few cases are on record. In the *Deutsches Archiv für klinische Medicin* for April three cases of this character are recorded, two of them by Schmorl, of Leipzig.

In a railway accident a man sustained a crushing injury of the liver. At the autopsy the right auricle was found to contain a brownish-red mass, which was seen to be a piece of liver. In the right ventricle was a similar but larger piece. Other smaller fragments were found in the right side of the heart. The foramen ovale was closed, and the left ventricle contained a piece of liver-tissue the size of a bean. The whole pulmonary vascular system contained emboli of hepatic

tissue, the main branch to the right lung was plugged, and both lungs were studded, as often happens after injury to the liver, with fat emboli. Other hepatic emboli were found in remote parts of the body. Of course these particles reached the distant organs through the patulous foramen ovale. (A case of kindred interest is that recorded in one of Cohnheim's lectures, in which an embolus from the iliac vein passed through an open foramen ovale and plugged the Sylvian artery, in a woman of middle age.

Schmorl's second case was that of a woman who was taken up dead after falling a great distance. The liver was ruptured, as were the endocardium and the anterior wall of the left ventricle. The right side of the heart contained fragments of liver tissue, and various branches of the pulmonary artery were plugged. The pulmonary capillaries contained liver cells.

Von Zenker reports a case of gun-shot wound of the liver and heart, with a similar condition of the heart and lungs. And Jürgens and Recklinghausen have likewise put on record similar cases of cardiac and pulmonary disturbance. Jürgens, indeed, has reported several cases of delirium tremens with extensive fat embolism of the lungs, spleen and kidneys, in which liver cells were found in the right heart and pulmonary capillaries.

While these cases are by no means common, the condition will be more frequently detected if systematically searched for. It has, moreover, beside a pathological interest, a decided medico-legal importance.—*Medical Press*, Aug., 1888.

Swallowing of a Nail—Treatment with Hydrochloric Acid.

A correspondent writes to the *British Medical Journal*, July 14, 1888, that the following case came under his care recently: A carpenter was standing on a piece of scaffolding, nailing up boards to the under part of a roof, and with the idea of having the nails near at hand when required, kept a few between his teeth. The scaffolding gave way, and the man, in saving himself from falling, swallowed one of the nails. He immediately felt severe pain down the course of the œsophagus, and afterwards there was constant pain and tenderness at the pyloric end of the stomach. He was made to limit his food to bread and milk, and given large quantities of hydrochloric acid, with the object of acting on the nail, and forming a soluble salt of iron. He was kept more or less under the influence of chlorodyne, his bowels being relieved occasionally by an injection. The motions after the first two days were blackened, and the stomachic pain and tenderness gradually subsided. He is now said to be apparently quite well. The nail which he swallowed was two inches in length.

Tertiary Syphilis of the Lung and Phthisis.

The differential diagnosis of these two diseases is thus given in the course of a series of lectures by CHARLES MAURIAC, reported in the *Gazette des Hôpitaux*: 1. The seat of predilection of tuberculosis is at the apex of the lung; in syphilis it is the middle zone, i. e., the right middle lobe, the lower part of the upper lobe and the upper part of the lower lobe. 2. Heredity plays an important part, seven-tenths of phthisical patients inheriting the tendency. 3. The course of the disease is very slow when it is syphilis. 4. The general symptoms are not at all alike. There are loss of weight, fever, functional disturbances of the stomach

and liver in phthisis; in syphilis this is not the case, and the contrast between the general good condition and the gravity of the pulmonary lesions is very marked. This is a very valuable point. 5. The history of syphilis and the presence of lesions is very important; gummata of the skin, exostoses, pharyngeal trouble, visceral syphilitic troubles, etc. 6. The constant local elevation of temperature, at the sight of tuberculous foci, is not found in syphilitic lesions of the lungs. 7. The bacillus of tuberculosis is a sign of some value, although its presence is no proof of the absence of syphilis. 8. Treatment is a criterion of value. When apparently irremediable pulmonary lesions yield with marvellous rapidity to the effects of mercury and the iodides it is almost impossible to deny their syphilitic nature.—*St. Louis Medical and Surgical Journal*, August, 1888.

Electricity in Incontinence of Urine.

In the *Gaceta de Enfermedades de los Organos Genito-Urinarios* for May, Dr. Alejandro Settier records two cases of complete incontinence of urine in which he used electrical treatment with success. The first patient was an officer, twenty-seven years old, who had suffered from the infirmity for eight years; it dated from a time when he was kept under arrest for nine hours without being able to pass water. The urine dribbled away in small quantities every few minutes without his being conscious of the fact; he only knew that it had occurred by feeling wet. Belladonna, atropine and nux vomica had been given without effect. Electricity was applied in the manner recommended by Guyon, and in little more than three weeks the patient was able to hold his water for half an hour. After some months of persevering treatment he could retain his water for two hours during the day, and only required to be awakened once in the night. Beyond this point, however, no further improvement could be obtained. The second patient was a boy, seven years old, in whom the affection appeared to date almost from birth. The same treatment was employed, and in rather less than two months the little patient could control his bladder for thirty-five minutes, and finally was completely cured. Dr. Settier lays stress on the importance of continuing the treatment at short intervals for a considerable time after the bladder has recovered its tonicity.—*British Medical Journal*, July 28, 1888.

IV. OBSTETRICS, DISEASES OF WOMEN AND CHILDREN.

Pathology and Treatment of Whooping-Cough.

At the recent meeting of the Imperial Royal Society of Physicians of Vienna, Dr. Von Genser read a paper on the pathology and treatment of whooping-cough. He first discussed the etiology of this frequent disease, and especially recent investigations going to show that it was a parasitic affection. Speaking of the recent work of Afanssiew on the *bacillus tussis convulsivæ*, the author of the paper said that a permanent value must be accorded to it. As to the treatment of this affection, he said he had availed himself of two methods on 200 children. The first method was that recommended by Michael, of Hamburg, viz., the insufflation of medicaments into the nose, and the second was the internal use of antipyrine. Michael, who considered whooping-cough as a reflex neurosis, was accustomed to order the insufflation, during a period of twenty-four hours, of a powder composed of one part each of powdered gum benzoin, sulphate of quinine and nitrate of silver, and thirty parts of calcined magnesia. He had stated that he had obtained very favorable results in the great majority of his cases; that in 7 per cent. the disease had disappeared in from two to three days. Dr. Von Gesner had employed this method in thirty-six cases, and had insufflated the benzoin powder into the nose by means of a curved glass tube. The number of paroxysms daily was shown by means of curve-tables. The spasmodic stage was considered as the beginning of the disease. His curves had never been quite satisfactory, and he had never observed any such surprising successes as had been obtained from this treatment by Michael. The duration of the treatment had varied from nineteen to eighty days, the average having been forty-three days. The sole advantage of the method consisted in the fact that severe vomiting could immediately be stopped. On one occasion he had insufflated with quinine, but the child thus treated had instantly been seized with vomiting. The insufflation of antipyrine irritated children very severely; they were seized with severe cough, and the results were by no means favorable, nor the successes numerous.

In the employment of the second method, he had prescribed the internal use of antipyrine to about one hundred and twenty children, a grain and a half of the drug daily being ordered for each year of age, so that a child of the age of five years was ordered to take fifteen grains of antipyrine, in three ounces of water and syrup, in the course of two days. Sonnenberger had recently reported favorable results from the internal use of antipyrine, and Dr. Von Gesner was able to confirm this statement quite emphatically. The paroxysms diminished considerably in number, and the individual attacks became shorter in duration

and less intense. The duration of treatment had varied between fifteen and forty-five days; hence the average had been twenty-four days and a half. In five cases in which the lungs were implicated the antipyrine had proved ineffectual. The drug was very useful and worthy of recommendation in cases of whooping-cough, and children took it willingly enough, as its bitter taste could easily be disguised. Its effect was either an antimycotic one—that is, destroying fungi that were present—or else a sedative one—it diminished the reflex irritability. It was, indeed, he said, no specific against whooping-cough, but, on the other hand, it was quite harmless. General hygienic measures, of course, also needed to be observed, as a part of this course of treatment. As to the experiments with acetanilide, which the author had also carried out in the treatment of whooping-cough, they had not proved satisfactory; the drug was not so efficient as antipyrine.—*New York Medical Journal*, July 28, 1888.

Recent Advances in the Physiology and Pathology of Infant Digestion.

Disturbances of digestion in infants in the first few weeks of life are so general and so dangerous to the individual unfortunately the subject of them, that it is a matter of the utmost importance that practitioners should become acquainted with all recent additions to our knowledge of the subject. The fact that the first year of life is still by far the one most dangerous, notwithstanding the recent improvements, is sufficient excuse for bringing the matter before our readers. For a general view of recent advances in this department of medical science, we are indebted in the present instance to a series of articles by Dr. Hochsinger, of the Public Children's Institute, Vienna, published by him in the columns of the *Wiener medizinische Zeitung*. The new development is due mainly to bacteriological research as applied to the fermentative diseases so frequently complicating digestion. Although for some time past there has been a general but vague impression that many of these affections were due to fermentative processes, the mode of action, and the manner of entrance of the germs into the system were but lately brought to light.

It was known that dyspepsia and diarrhœa were far less frequent in children fed at the mother's breast, than in those brought up on substitutes, whatever they might be, and the question came to be asked whether this difference was due to the greater resisting power of human milk to the microbes that everywhere abound. If this were not so, and, in fact, it was not so, another answer must be sought. The answer as founded on human experiments by Soxhlet, Escherich, Heubner, and others, is this: Because when children are fed at the breast no bacteria enter the intestinal tract along with the food; for human milk, as drawn from the breast, is absolutely free from germs. When children are fed with substitutes, on the other hand, and especially with cow's milk, considerable quantities of germs pass into the intestinal tract along with the food. It is quite clear that milk that has been drawn some time, and passed from hand to hand, from vessel to vessel, and has been exposed to the air will contain germs, and that the germs will not have been destroyed by boiling, for the process of cooking is never continued long enough to destroy them, and, moreover, the infant does not

get it immediately after the boiling, and, therefore, under no circumstances, does it get its food in as pure a condition as one fed at the breast.

As the feeding of infants at the breast is the natural and most perfect method, the only way of getting an insight into the disturbances of nutrition that accompany artificial feeding is to compare at every step the chemistry of digestion under the two conditions. This comparison has been made by Escherich. The oral secretion in young infants is insignificant, and the mother's milk reaches the stomach quite free from germs, where it is quickly coagulated. Simultaneously with this coagulation begins the pepsin digestion of the casein, which, however, is not completed in the stomach. The principal part of this process of solution and resorption of casein, as well as of the resorption of the fat and saccharine constituents takes place in the small intestine, and principally in the upper section of it. According to the researches of Taube and Escherich, the stomach of the sucking child appears principally to play the part of a container, out of which, after complete coagulation of the casein, the food passes in measured quantities into the small intestine. Here, as recent researches show, the casein and milk sugar are completely resorbed, and the fat and inorganic constituents almost, but not quite completely so. The fæces of infants therefore consist, like those of starving persons, of these insignificant remains of food, and the secretions of the intestinal tract. The albuminous bodies of the mother's milk are completely used up. The fæces contain no casein, and the nitrogen contained in them does not depend directly upon the food digested, but upon the rather large quantity contained in the intestinal secretions. As regards the digestion of cow's milk by infants the researches of Escherich tend to show that when thoroughly sterilised there is no essential difference between it and the digestion of human milk. Notwithstanding the fact that cows' milk contains three times as much casein as human milk, and that when curdled much coarser curds are formed than with the latter, it is as completely used up in the digestive tract of the infant as human milk. The larger quantity and increased consistence of the fæces of children fed on cows' milk depend on the more imperfect using up of the ashy constituents and of the fat, and are principally the result of the overfeeding which is so habitual in the case of children brought up by hand. These investigations seem to make short work with the doctrine of the indigestibility of cows' milk. So far did this idea of indigestibility prevail that everything wrong in the indigestion of infants fed on cow's milk was, and possibly still is, attributed to it, and the writer points out that this belief was due, not to the teaching of experimental physiology, but solely to the want of any other known cause to which the indigestion could be attributed. The essential difference then between the digestion of cows' and that of human milk depends neither on the different digestibility of their albuminoid bodies, nor on the chemico-physiological differences between the two kinds, important as these may be in the case of weakly infants. It lies rather, along with the habitual overfeeding already noted, in the unavoidable infection of cows' milk by germs (schizomycetes), which by the mingling of the products of their tissue changes with the milk, or by their injurious action after reaching the alimentary canal along with the milk, are to be looked upon as the excitors of the great bulk of acute disturbances of digestion, and especially of the summer diarrhœa that is the great cause of infantile mortality.

The bulk of disturbances of digestion in infants brought up by hand, therefore, is due not so much to the inherent indigestibility of the substitute for mother's milk as to the unavoidable contamination of the artificial food with the germs of various microbes. In the intestines of infants, as Escherich showed in 1885, even when exclusively fed on breast milk, two kinds of bacteria are constantly met with. These he named the *bacterium lactis aërogenes* and the *bacterium coli commune.* These two kinds enter the canal very shortly after the child begins to breathe. The presence of these two kinds is, however, to be looked upon as a sign of normal digestion. The first-named is met with in the small intestine, particularly the upper portion; it has no pathological significance; it appears rather to play a physiological rôle, inasmuch as it aids in the fermentation of milk sugar under the formation of lactic acid and the development of carbonic acid and water. The second species, the *bacterium coli commune*, as its name implies, inhabits the colon; it has no fermenting or decomposing influence on the digestive material. During normal digestion, then, the milk sugar alone, under the action of a specific kind of bacterium, undergoes decomposition; whilst neither the caseine nor the fat is subject to any material bacterial decomposition.

The case is different, however, where the digestion of milk is abnormal. The bacteriological examination of dyspeptic or diarrhœic stools shows an enormous increase in the quantity of contained micro-organisms as compared with normal fæces, and it is assumed that the dyspepsia or diarrhœa is the outward and visible sign of the inward multiplication of pathological bacteria. Notwithstanding this assumption, however, no pathogenic species of bacteria have been discovered in the dejections of such dyspeptic or diarrhœic children, or cultivated from them. Large quantities of bacteria and bacilli have been discovered, it is true, by Baginsky and Escherich; but their pathological significance has not been ascertained. It may also be objected by the critical that, where there is such free communication between the external atmosphere and the intestinal tract of the infant, it would be an extremely difficult matter to shut out pathological, or indeed any germs; and that where the communication is so free that all sorts may enter at will, it is scarcely necessary to call in the aid of artificially prepared foods to account for the presence of such germs in the intestinal tract. Dr. Hochsinger replies to this objection by bringing forward the acknowledged germicidal action of the acids of the stomach, which are, as he states, fatal not only to the cholera bacillus, but to almost all the known varieties of the schizomycetæ, and quite capable of giving a good account of such as might enter independently of the food.

The case is different, however, as regards the bacteria present in food. Many are already known to be present in milk that has stood any length of time, and milk is also known to afford a suitable soil of growth to a large number of pathological bacilli, those of anthrax, cholera and typhoid fever, for instance. All the organisms that produce pus, moreover, are known to flourish in milk. It is known, also, that the growth of all micro-organisms is attended with chemical actions; some of them express themselves by gradually turning the milk sour, and some by the decomposition of albumen. The latter property or proteolytic action is, according to Heubner, of great etiological importance. It is easy to

understand that microbes of this kind, when introduced into the infant's stomach, are capable of producing decomposition of casein, the products of which may act injuriously and in such a way as to cause a change of reaction upon the walls of the stomach; and the more so when the action of the microbes has begun in the milk even before it has been taken as food. Another class of species appears to act poisonously by the development of ptomaines during growth; of this class, the *bacillus oxytocus perniciosus* is the type. The presence of fermenting material in the stomachs of artificially-fed infants has long been known as the cause of serious gastric disturbances, and as founded on this knowledge may be mentioned the method of treatment frequently adopted in Germany of washing out and disinfecting the stomachs of children so suffering. Similar pathogenic bacilli have been found in abundance in the stools of dyspeptic infants, and amongst the number some that had a proteolytic action, and in one case the *streptococcus pyogenes* was met with.

It has long been thought that the green color of the stools of dyspeptic infants is due to an excess of acidity; but Pfeiffer, of Wiesbaden, has determined by numerous experiments that no acid met with in the intestinal canal has the power of giving a green color to fæces; but that alkalies have such a power. And that, moreover, when once turned green by alkalies, acids have no power to destroy the color. The alkalescence that has caused the green color is no unimportant matter; for it is acidity that affords protection against the invasion of the intestinal tract by bacteria, and when once this gives place to alkalinity, the protection against their development is at an end. Pfeiffer is therefore of opinion that the addition of alkalies to milk, or their administration in disease is to be avoided. The correctness of Pfeiffer's view seems to be borne out clinically by the fact that the ingestion of too much milk (increased alkalescence) causes the stools to become green; and that very often the administration of acids will prevent their becoming so.—*Medical Press and Circular*, May 23, 30, 1888.

Treatment of Habitual Constipation in Infants.

Eustace Smith, M.D., F.R.C.P., senior physician to the East London Children's Hospital, says in the *British Medical Journal*, July 7, 1888: Sluggishness of the bowels in infants is a common source of trouble in the nursery, and the derangement is one which it is not always found easy to overcome. Occasionally aperients in such a case give only passing relief. The bowels, indeed, are unloaded for the time, but when the action of the aperient is at an end, they are left no less sluggish than before. Habitual constipation is very common in infants who have been brought up by hand; and, on inquiry, the trouble will often be found to date from the time at which bottle feeding was begun. Still, infants at the breast are not exempt from this annoying derangement. A deficiency of sugar in the breast-milk, or, as is sometimes seen, a milk the curd of which makes a firmer clot than is common in human milk, will often cause habitual torpor of the bowels which resists treatment with some obstinacy.

It is, no doubt, to improper, or at any rate inappropriate, feeding that the bowel trouble is usually to be referred. An excess of starch in the diet, or any food which overtaxes the child's digestive power and thus burdens the alimentary canal with a large undigested residue, may set up the costive habit. By such

means a mild catarrh of the intestinal mucous membrane is excited and maintained. There is excess of mucus, and the fæcal masses, rendered slimy by the secretion, afford no sufficient resistance to the contractions of the muscular coat of the intestine, so that this slips ineffectually over their surface.

Another cause of constipation is dryness of the stools. Even in the youngest infants the evacuations may sometimes be seen to consist of little, round, hard balls, often the size of sheep droppings, which are passed with difficulty every second or third day. This form of costiveness is generally due to insufficiency of fluid taken. The food is made too thick, or the needs of the system in the matter of water are in some way overlooked. But whether the constipation be due originally to the excess of mucus or deficiency of fluid, it cannot continue long without affecting injuriously the peristaltic movement of the bowels. As the colon grows accustomed to being over-loaded, the intestinal contents can no longer exert a sufficiently stimulating influence upon the lining membrane, and the muscular contractions begin to flag. If the infant be poorly fed and badly nourished, this languor of muscular contraction may be aggravated by actual weakness of the muscular walls; and as under these conditions the bowel is apt to be over-distended by accumulation of its fæcal contents, the expulsive force at the disposal of the patient is seriously impaired. Constipation, resulting from the above causes, is often made more obstinate by the infant's own efforts to delay relief. A baby whose motions are habitually costive knows well the suffering which undue distension of the sphincter will entail, and often yields to the desire to go to stool only when it is no longer possible for him to resist it. The pain is sometimes aggravated by the formation of little fissures about the anus, and the violent contraction of the sphincter set up by the presence of those fissures forms an additional impediment to free evacuation.

There is another form of constipation in infants which we should be always vigilant to detect. This is the torpidity of the bowels induced by opium. In well-to-do families the use of soothing syrups and other narcotic preparations is now less common than was at one time the case; but now and then we find a baby drugged for reasons of her own by an unscrupulous nurse, and showing the earlier symptoms of narcotic poisoning. So long as the sedative continues to be given the bowels are costive, the child often vomits, his relish for food in great part disappears, and he lies with pupils firmly contracted in a dull, heavy state, from which he cannot easily be roused. In young babies the use of opium seems to lessen the action of the kidneys, the urine is scanty, and on examination of the the surface of the body the healthy elasticity of the skin will be found to be seriously impaired. When pinched up between the finger and thumb the skin lies in loose folds on the abdomen or only slowly recovers its smoothness. If this inelasticity of skin be noticed in a baby whose pupils are closely contracted, and who seems habitually heavy and drowsy, with little relish for his food, it is well to remember that these symptoms may possibly be due to the action of a narcotic.

An infant whose bowels are habitually costive is not necessarily injured by the want of a daily relief. Often the child seems perfectly well in health, and, except for occasional local discomfort when he gets rid of an unusually large or hardened mass, may appear to suffer no inconvenience at all. In other cases

there is flatulent distension or frequent colicky pain, the child sleeps badly, has a furred tongue, and cares little for his food; the motions are often light colored from undigested curd, and are passed with violent straining efforts, during which the bowel may prolapse or the naval start. This straining is a not uncommon cause of hernia.

In remedying this condition attention to the feeding and clothing of the baby is of little less moment than the use of drugs. When the infant is at the breast a teaspoonful of syrup given three to four times a day before a meal will often quickly restore the normal regularity of the bowels. If the stools are habitually dry and hard, we should see that the child takes a sufficiency of liquid with his food. In addition, it is useful now and then to make his drink some plain filtered water. In the case of a baby in arms, the possibility that the child may be thirsty and not hungry seems rarely to be entertained; but in warm weather, when the skin is acting freely, the suffering amongst young babies from want of water must often be acute. At such times the urine is apt to be scanty and high-colored, and may deposit a streak of uric acid on the diaper. When fluid is supplied, the secretion both from the bowels and the kidneys quickly becomes more healthy; and a dessert-spoonful of some natural saline aperient water, given at night, aids the return of their natural consistence to the stools.

The form of constipation which is due to mild intestinal catarrh is common enough in young babies. This is owing, no doubt, in great measure to the over-abundant feeding with starchy matters, or to the giving of cow's milk without taking due precautions to ensure a fine division of the curd. Still it cannot be denied that we sometimes find the same derangement in infants whose diet is regulated with proper care and judgment. In them the intestinal catarrh is frequently the consequence of exposure, for the sudden withdrawal of all protection from the lower limbs and belly which the process known as "short-coating" too commonly involves is a fruitful cause of chill. In children so denuded, the feet and even the legs as high as the knees may be quite clammy to the touch. Under such conditions the susceptibility of the patient to alternations of temperature must be extreme, and the bowels are, no doubt, often kept in a state of continued catarrh from rapidly recurring impressions of cold.

Where the constipation is due to this cause our first care must be to protect the infant's sensitive body so as to put a stop to the series of catarrhs. To do this it will not be sufficient to swathe the belly in flannel. The legs and thighs must also be covered, for a lengthened experience of these cases has convinced me so long as a square inch of surface is left bare the protection of the child is incomplete. We should next see that the infant's dietary is regulated with due regard to his powers of digestion. Excess of starch must be corrected, and it is best to have recourse to one of the malted foods. Mellin's food is especially valuable in cases where there is this tendency to constipation, as in many children the food has a very gentle laxative effect; but as Mellin's food contains no unconverted starch, and can do nothing to prevent the formation of a dense clot when the curd of milk coagulates in the child's stomach, it is advisable, when giving it with milk, to ensure a fine division of the curd by the addition of some thickening material such as barley water. A child of six months old will usually digest well a good dessert-spoonful of Mellin's food, dissolved in milk, diluted

with a third part of barley water. A certain variety in the diet is of importance in all cases where the digestive power of the infant is temporarily impaired. Therefore, it is advisable to order an additional food to be given alternately with the Mellin and milk. Benger's "self-digesting food" is useful for this purpose, and rarely disagrees. It must be given, like the Mellin, with cow's milk, but without the barley water, for the pancreatine it contains has a digestive action upon the curd, and removes the tendency of the latter to firm coagulation. In addition to the above, if the child has reached the age of ten months, he may take a meal of veal broth or beef-tea once in the day, and with this it is advisable to give some vegetable, such as broccoli or asparagus, thoroughly well boiled. At this age, too, the milk for the morning meal may be thickened with a teaspoonful of fine oatmeal, and sweetened with a teaspoonful of malt extract. In the case of many infants suffering from habitual constipation, the appetite is very poor, and great difficulty is found in persuading them to take a sufficient quantity of nourishment. This indifference to food is almost invariably associated with coldness of the extremities, and usually disappears when measures are taken to supply necessary warmth to the feet and legs.

In all cases where an infant's bowels are habitually costive, it is of the first importance to enter thoroughly into these questions of clothing and diet. In addition, care should be taken that the bowels are regularly stimulated by manipulations from without. The sluggishness of peristaltic action which forms a part of every case of habitual constipation may be very materially quickened by judiciously applied frictions. The nurse should be directed to rub the child's belly every morning after the bath. She should use the palm of the hand and ball of the thumb, and, pressing gently down upon the right side of the abdomen, carry the hand slowly round in a circular direction following the course of the colon. The frictions may be continued for five minutes. In obstinate cases the child may be laid down upon the bed, and the bowels gently kneaded with the thumbs placed side by side; but in this case, too, the movements should follow the course of the larger bowel.

In addition to the above treatment, more special measures have often to be employed. These may be divided into two classes: the class of suppositories and injections, and that of remedies given by the mouth.

The class of suppositories and injections aims at producing an immediate evacuation of the bowel, and in no way tends to promote more regular action in the future. These remedies are, therefore, useful in clearing the way for future treatment; but there their value ends. A suppository of Castile soap introduced into the rectum is a time-honored method of inciting an evacuation in the child. Another old-fashioned plan has lately been revived, which consists in the injection of forty to sixty drops of pure glycerine into the lower bowel. In each case energetic peristaltic action of the alimentary canal is induced, and the bowel is thoroughly emptied of its contents. Of these applications the action of the glycerine is very rapid, and in a few minutes the effect of the injection is seen. The soap suppository acts more slowly.

Injections of soap and water, or other liquid, have an entirely mechanical action in relieving the patient. To be effectual such injections must be large, consisting of at least half a pint of fluid, and should be thrown very slowly into

the bowel. Still, although of service when given only occasionally, the frequent use of large injections is not to be recommended; indeed, this method of treatment is distinctly hurtful in cases where the costiveness has become a habit. Even in young babies great dilatation of the bowel and serious weakening of its muscular coat have often followed the daily use of the enema pump.

For the permanent cure of habitual constipation remedies given by the mouth are greatly to be preferred, but, at the same time, strongly acting purgatives are worse than useless. Our aim should be to find the smallest dose which will awaken a normal degree of energy of peristaltic action, and to give this dose regularly so as to induce a habit of daily evacuation. The daily dose is most efficacious when combined with a remedy which tends to give tone to the muscular coat of the bowel. For this purpose a useful draught is composed of half a drop of tincture of nux vomica combined with ten drops of tincture of belladonna and twenty of infusion of senna, made up to a fluid drachm with infusion of calumba. This draught should be given at first three times a day before food, but soon two doses in the day will be sufficient, and it is rarely long before one dose given at bedtime has a sufficiently laxative effect. Our object is not to excite watery evacuations, but to induce as faithful an imitation as possible of a normal action of the bowels. The liquid extract of cascara is useful in many cases, especially if combined with tincture of belladonna. Twenty, thirty, or more drops of cascara extract, with ten of the belladonna tincture, may be given with a few drops of glycerine in a little water every night. In the west of England a remedy held in high esteem consists of a half grain of sulphur colored red with cochineal. That this apparently insignificant dose is often efficacious when given regularly every night I can testify from my own experience.

In cases where the motions are drier than natural, as if from imperfect secretion of the intestinal glands, the addition of liquid to the diet, already recommended, may be supplemented by the administration of some saline aperient two to three times a day. This treatment is made more effectual when the saline is combined with small doses of nux vomica and quinine. For a baby of 6 months old five to ten grains of sulphate of soda may be given with one-quarter of a grain of quinine, half a drop of tincture of nux vomica, and a minim of aromatic sulphuric acid, in a teaspoonful of water three times a day before food. As in all cases where the remedy prescribed has been chosen with judgment and given in appropriate quantity, the continued administration of this draught, so far from rendering the bowel dependent upon the medicine, stimulates it to act spontaneously, so that the dose has soon to be given less frequently, and in no long time can be discontinued altogether.

By means such as the above the most obstinate case of constipation in the infant can be cured with little difficulty, but to be successful the treatment must not be restricted to mere drug-giving. The food of the child must be regulated with care, his clothing must be inquired into, and his general management passed under review. Where this is done, drugs given in comparatively small doses will act with sufficient energy, and will soon restore their normal regularity to the bowels.

Diseases of the Female Urethra.

Dr. James F. W. Ross read an exhaustive paper on this subject before the Toronto Medical Society, May 31, 1888. After showing, from a description of

its anatomical and histological structure, that it was as liable to disease as any other part of the body, the reader of the paper pointed out that it might be examined in any, or all of five ways, viz., by (1) sounds, (2) digital dilatation, (3) instrumental dilatation, (4) speculum, (5) opening into it. Emmet's button-hole operation was described in detail. Injury to the passage may occur from laceration during confinement, or from the presence of foreign bodies. Dr. Ross then described atresia, urethrocele, prolapse of the mucous membrane, laceration of the membrane, and hyperæsthesia, with the causes and treatment of each. Of the foreign growths, polypi are the most important, being found from a pea to a hazelnut in size, and from pale cherry to bright red in color, producing such symptoms as burning, dysuria, vaginismus, pruritus, convulsions, etc.

Dr. Sweetnam, in discussing the paper, insisted upon examination of the urethra in all cases of irregular and painful micturition. The canal was curved, not straight, and this was often forgotten. In cases of injury or operations there would be no incontinence so long as the roof or superior wall was not injured, as the ganglion regulating the desire for micturation lay along that wall. Emmet claims that all caruncles follow injury to the mucous membrane received during labor. Another lesion sometimes found was shortening of the canal from the application of caustics.

Dr. Machell drew attention to the fact that the meatus sometimes appeared greatly inflamed, and yet gave no symptoms.

Dr. Nevitt related two cases of urethral prolapse relieved by abscision and caustics.

In referring to some cases mentioned, where difficulty has been experienced in finding the meatus, Dr. Ross said that it was sometimes just within the hymen, owing to imperfect formation. He considers the use of caustics in the urethra reprehensible. In many cases when young women micturated at night, if examination were made, the urethra would be found inflamed—*Canadian Practitioner*, August, 1888.

Use of Antipyrine During Labor.

Dr. Egbert H. Grandin, in a communication to the *N. Y. Medical Journal*, July 14, 1888, says that it is the laudable aim of the obstetrician of to-day to mitigate, in so far as he is able, the pangs of child-birth. The means to this end to which we may resort without damage to either the mother or the child are few in number, and the most valuable of all justly finds its chief rank after the completion of the first stage of labor. During this stage the accoucheur is in a position to do but little toward relieving the maternal suffering, and this little consists in the administration of opium or of chloral. The former drug he has always been loath to administer to the parturient, for the reason that if pushed it may retard the labor, and further because it is of the highest importance to the puerpera that the intestines should functionate normally in order that this main emunctory should not become locked, and poisoning from fæcal accumulation ensue. In chloral, he says, we possess a most valuable means of "taking the edge off the pains" and of regulating their rhythm, but the woman's suffering during the acme of the pains is still intense, and one often wishes he had an adjuvant to the chloral which, whilst nullifying none of its effects, would render the contractions practically painless. In the hands of certain observers, elec-

tricity—the Faradic form chiefly—has rendered service in this direction, but, valuable as this agent has proved in his hands as an oxytocic, it has never appeared to him to possess any anæsthetic effect on the uterus. When cocaine was discovered, before long it was heralded as of value as a local anæsthetic during childbirth. With Dr. Grandin, however, it has proved of no value whatsoever during the first stage of labor, and questionably if at all during the second stage. The excellent results he obtained with antipyrine in dysmenorrhœa and other affections in which it is a question of nerve pain, led him during the past year to test it during the first stage of labor, and his results have been sufficiently gratifying to justify him in asking other obstetricians to try the drug. Possibly it has been similarly used by others, but if such be the case he says he has seen no record of their experience. His custom in regard to the administration of the drug is to give fifteen grains well diluted, and preferably with some stimulant, such as the aromatic spirits of ammonia, and to repeat the dose in one hour thereafter. In two hours after the second dose the patient receives ten grains, and so on every two hours if needed. The chloral mixture he administers in fifteen-grain doses every three-quarters of an hour till three to four doses have been received. The result of this combination has been to nullify the pains so much as to be in two instances scarcely perceptible, and in others simply uncomfortable. The progress of labor, he says, has not been at all interfered with, and neither the mother nor the child has presented evidence of injury from the administration of the antipyrine.

Herpes Zoster in Children.

Robert J. Lee, F.R.C.P., late Physician to the Hospital for Sick Children, London, in a communication to the *Medical Press and Circular*, June 27, 1888, says that herpes zoster, or zona, occurs in about the ratio of 2 per cent. of the cutaneous diseases common to children, and is certainly a less severe malady than it is in adults. It would seem that while in the latter case it generally affects the median part of the trunk, and particularly the lower intercostal nerves, in children it is much less limited in this respect. Thus we meet with it on the cheek, the angle of the jaw, the post-auricular and post occipital regions, on the supra-scapular, the humeral, and the anterior femoral regions. The eruption is often limited to a small surface, and the vesicles appear in a more or less circular crop, covering an area of from one to two inches in diameter, that is to say, they are closely aggregated within such areas, and do not extend in a line for some distance, as in zoster intercostalis. The rarest case of zona is that of the coccygeal nerve, of which Mr. Lee has only met with one instance.

As regards age, Mr. Lee says he has not seen this form of cutaneous neurosis earlier than the age of one year and ten months. It is most common between the ages of four and six. The relation of this singular malady to constitutional disturbances, by whatever cause induced, is almost as obscure in children as in adults. It may be observed, he says, that cases occur often at certain times of the year, preferably in the spring and autumn months. At least he has noticed that several cases will present themselves at such times, and then for months there is an absence of them. It is probable that the explanation of this is to be found in the greater variations of temperature at those seasons of the year, and

that among the various causes of zoster there is a great probability that cold is a common one.

He regards as a common cause what implied by the general term "indigestion." At least, he says, we frequently observe various symptoms of deranged digestion in children a few days before the appearance of the eruption. He admits that the indigestion may be only a secondary cause, and that some external disturbing influence has preceded it, such as cold or some emotional trouble. In some cases, however, he thinks he can refer the attack to indigestion consequent on some particular disturbance from improper food, and this is decidedly more marked in his own experience in cases of zona of the lower intercostal nerves, so that it seems probable that the determination of the locality of the eruptions on the surface may depend on the part or particular organ affected.

Where it occurs as a small patch on the centre of the cheek he says it may be found to be associated with some active dental changes. It would thus appear reasonable in the analysis of the probable cause of the malady in any particular case, to consider carefully the nervous relations of the part affected, for if it be shown that certain localities are affected when certain organs are disturbed, we may find, he says, that other forms, the origin of which at present is obscure, may be due to disturbance of certain other organs, as, for example, the kidneys, bladder, etc. This, Mr. Lee says, seems to be the direction in which further clinical observation may be profitably directed.

In regard to the general derangement of the constitution from zona in children, it seems to be slight as compared with what is seen in adults. The local pain is not so severe, and there is none of the acute neuralgia which is complained of by those suffering from shingles. The vesicular eruption is also slighter in degree. The vesicles heal more quickly, do not leave scars, and sometimes do not rupture, but dry up without ulceration.

With regard to the treatment, he says it is of chief importance to prevent ulceration from irritation of the vesicles. This is especially the case in delicate children, for it may happen that rather deep ulcers may form after rupture of the vesicle, and local dermatitis may persist for some length of time. From the first he thinks it is best therefore to cover the vesicles with oxide of zinc, and lint and plaster, so that they may be protected from friction. The internal remedies proper in each case will be suggested by the clinical history, symptoms, and other considerations.

The Delivery of the After-Coming Head.

WINCKEL, at the recent meeting of the German Society for Gynecology (*Münchener medicinische Wochenschrift*, No. 22, 1888), referred to twenty-one methods of extracting the after-coming head. He considered that procedure best which combined pressure externally with the maintenance of the head in the position best suited for birth.

He accomplishes this as follows: The trunk and arms, when born, are raised. Two fingers of the right or left hand toward which the face looks are placed in the child's mouth at the base of the tongue and flexion is secured. The trunk is then placed upon the forearm of this hand and with the other hand pressure is made through the uterus upon the head.

As Wigand and Martin had previously described this method, he styled it by their names. He had found delivery by this method readily effected with a pelvic antero-posterior diameter of two and one-half inches. Martin had employed it successfully in thirty-three cases, and he used it often in his clinic.

SCHULTZE, to avoid injuring the child's mouth, placed four fingers on the forehead and made traction.

MARTIN believed that the method described by Winckel was superior to the use of the forceps, or to operations for lessening the size of the head.

BREISKY thought that pressure on the head should only be made when the head is in the upper, and not in the thinned inferior uterine segment, to avoid rupture of the uterus. The entrance of the fingers into the mouth was a lesser evil, as it often introduced bacteria; he usually placed his fingers on the chin, or upper jaw.

WINCKEL, in closing the discussion, limited the force exerted on the child's mouth to the moderate traction necessary to secure flexion. He had employed this method when the uterine segment was greatly stretched without accident.—*American Journal of the Med. Sciences*, August, 1888.

Some Observations on Lactation.

DR. G. WYTHE COOK, of Washington, D. C., in a paper read before the Washington Obstetrical and Gynecological Society, February 3, 1888, and published in the *American Journal of Obstetrics*, July, 1888, says: Within recent years much progress has been made in preventive medicine. The causes of disease are being sought for with great industry, and the homely proverb, "an ounce of prevention is worth a pound of cure," is a most inspiring theme to the modern sanitarian. With a view of pointing your attention in a direction which I think has been too much neglected, I will submit some observations on the subject of lactation.

That a full flow of good milk from the mother's breast is necessary for the the proper alimentation of the infant goes without saying. That it is often deficient is within the observation of every physician, and the multitude of infant foods with which the market is flooded, and the samples which are being continually thrust upon us with their advertisements and certificates, vaunting them as equal, if not superior to, mother's milk, fully attest the fact that something is wrong with the lacteal secretion in mothers.

The mammary gland is a strikingly peculiar organ, remaining in a state of perfect inactivity for a lifetime unless pregnancy and childbirth should supervene. But if pregnancy should occur, we witness a remarkable evolution in the gland. Its vascular supply is increased, it enlarges and and becomes tender, and in primiparæ the areola loses its pinkish hue, becoming of a dark brown color. Within the gland, the "alveoli enlarge and the contained cells undergo rapid multiplication. And at the commencement of lactation the cells in the centre of the alveolus undergo fatty degeneration, and are eliminated as colostrum corpuscles."*

This organ, which had remained in a state of absolute quietude before pregnancy began, has during the period of gestation developed into an actively

* Gray's Anatomy.

secreting organ. With this complete provision on the part of nature for lactation, why is the secretion of milk so often deficient? Putting aside those cases which would ordinarily be considered exceptional, as not included in the present inquiry, I think the difficulty will be found to lie either in the failure to give proper attention to the nipple, in the time of the application of the nursling to the breast, in the food and digestion of the mother, or in a want of *earnest* inclination on the part of the mother to suckle the child. The last is a most deplorable condition, for it is like robbery to deprive the child of its natural and rightful food.

In the primipara, it is necessary to give some attention, in the latter months of pregnancy, to the preparation of the nipple. Systematic daily traction with the fingers should be practised upon the nipple, and if it be small and depressed, it is especially necessary that suction by the nurse or some young animal should be persisted in. And dilute alcohol or some astringent lotion should be applied in order to harden the tender skin of the nipple, that it may be in good condition when the nursling is placed to the breast. I think this preparatory treatment of the nipple is generally neglected, and as a consequence there is frequently an eroded or cracked nipple that renders suckling so extremely painful to the mother that she dreads the time when she must apply the child to the breast. The intervals between the nursing periods are made so long that the breast has become over-distended, the child can with difficulty keep the nipple between its lips, and the mother suffers such intolerable anguish that nursing, which should be to her a most blissful duty, becomes an agonizing burden, and as a sequence the child is ill nourished, and the mother suffers and suffers (and who can say how long she will suffer?), for she is almost certain to have a mammary abscess and a permanently crippled organ.

When shall the child be applied to the breast? In regard to this the physician usually dismisses the subject with a few general directions, leaving the whole matter to the discretion of the mother or nurse. This I believe to be a serious error. I think that explicit and positive directions should be given, and daily inquiry made to ascertain if those directions have been carried out. As soon after the delivery as the mother has had time to rest a little from the fatigues of labor, not later than four or five hours, the nipple having been first thoroughly cleansed, the child should be put to the breast, and this is best accomplished by placing it parallel with the body of the mother, she lying upon the same side as that of the breast to be suckled, so that the nipple falls easily within its mouth, at the same time observing that its breathing is not interfered with. The mother should gently squeeze the base of the nipple that some of the milk may be injected into the child's mouth and the act of suckling encouraged. The object of this early application of the child to the breast is twofold. First, the child can be more easily taught to nurse at this period than it can if longer time has elapsed, and while the breast is soft it can more readily take the nipple in its mouth than it can after the breast has become engorged. Second, the cells which have degenerated into colostrum corpuscles must be removed that the secreting surface may be free to produce the necessary pabulum, and the act of suckling promotes the secretion of milk. If the putting of the child to the breast is delayed until after the "milk fever," much difficulty will be experienced.

in inducing the child to nurse, because it will have lost in a measure the disposition which it had at first to suck whatever was placed between its lips, it having been supplied from a spoon with sweetened water and various "teas" to quiet its demands for nourishment, and the breast having become more swollen and tender, the nipple is less easily grasped, and the mother suffers more than she would have done had the child been placed at the breast earlier, and she is less able to exercise the patience necessary to teach the child how to nurse.

How often should the child be applied to the breast? This is generally done in a sort of haphazard way, without any regard to regularity, often to the detriment of both mother and child. I think that *definite* directions should be given that the new-born babe should be placed to the breast, during the daytime, at every interval or two, or, at most, three hours; at night, less frequently, at about four hours' interval. This longer interval at night gives the mother an opportunity for necessary sleep, and the child is taught good habits from the beginning. By a disregard of these little details as to regularity in nursing, the efficacy of the mammary gland is impaired, and there is a deficient milk supply, much discomfort is stored up for the mother, disordered digestion awaits the child, and merited annoyance comes to the physician.

Mrs. H., mother of four healthy children, was delivered of her fifth child, a plump, well-developed boy, in November, 1884. I did not anticipate any trouble with the lacteal secretion, as the breasts were well developed, and she had nursed her former children without difficulty. The flow of milk came on promptly, and, while it was not abundant, seemed to be sufficient. She had a good getting up at the expiration of ten days, and all promised well. A fortnight later I was called to see the child, and found it fretful and feverish, with an inflamed mouth and troublesome diarrhœa. I was informed that it had had an attack of "*colic*" the week before, for which the nurse had given it various "teas." The child seemed to have lost its appetite, and with difficulty could be induced to nurse, and in consequence of the worry and fatigue the mother had undergone, and the failure of the child to nurse, the secretion of milk was very much diminished. The child preferred to take the warm tea from a spoon rather than to draw the milk from the breast. It finally refused altogether to take the nipple, and, as a matter of course, the lacteal secretion ceased. It is not necessary to detail all that happened to the child—it is sufficient to say that after a very protracted illness, during which it became so much emaciated as to present the appearance of an old, dried-up mummy, to the surprise of everybody it recovered, and is now a healthy, robust child. I attended Mrs. H. again in April, 1886, when she was delivered of a well-nourished girl baby. Thinking there might be some difficulty in nursing this child, as the milk had disappeared as soon after the former accouchement, I was very particular to inquire as to the qualifications of the nurse who had been engaged for this time. "Aunt Jane" was a jolly, loquacious old woman from "York State." She had had much experience, having been engaged for many years as a general as well as a monthly nurse. She was full of anecdote, and kept all about her in good humor. Her cardinal principal, as announced by herself, was to "do just what the doctor ordered;" so I thought I could trust her, and felt comfortable in the belief that I could rely upon the nurse. But, alas, for human frailty! "Aunt Jane" was meddlesome. She carried a

little bag, in which were stored herbs from which to make the various "teas," which in *her wise* judgment were so necessary for young infants. But, worst of all, she was a "sugar teat" fiend. As soon as she had an opportunity, she immediately thrust one of those villainous things into the child's mouth. She gave it tea from a spoon, and supplied it with milk from a bottle.

In due time the milk came in the mother's breast, but the flow was rather scanty; and as "Aunt Jane" had decided that the mother should not nurse the child, it was not long before the secretion ceased. The mother was an amiable, unresisting person, and yielded with but faint demur to the dictation of the wilful nurse. It was not long before the child's digestion was completely upset, nothing agreed with it, and, after a miserable existence of about four months, it died of starvation. The facts respecting "Aunt Jane" were detailed to me after the death of the child. "Aunt Jane" herself has since died, and it would be quite consoling could we think that with her had perished the last of her type. But her counterpart still remains to plague us. Will the Training School for Nurses eradicate her?

Having had this experience with Mrs. H., you can imagine with what solicitude I was filled at the suggestion that she was probably pregnant again. In June of last year she was delivered of another girl baby, which was well developed and healthy in every respect. I was greatly concerned about the milk, and was afraid there might be none. I was determined to see what would be the effect of persistent application of the child to the breast, and was gratified when the flow came on as previously. I was heartily seconded in my efforts in this case by the nurse (a good old colored woman), as well as by the mother, and we were rewarded by a sufficient quantity of milk. The child has had uninterruptedly good health, and is at this time plump and vigorous.

There is a growing tendency with many mothers not to nurse their children if there is the slightest pretext upon which it may be omitted. The history detailed above warrants me in saying that notwithstanding there may have been a failure in the milk previously, the new-born child should always be put to the breast, and a most determined effort made to induce and keep up the flow of milk, and in the vast majority of cases well directed effort will be rewarded with success. There are a number of cases reported in which continued suction upon the nipple has induced a flow of milk in barren women and in virgins, even in women who have passed the child-bearing age, and, stranger still, in men. These facts should afford us much encouragement, and we may expect as good results in the recent mother.

While regular and frequent applications of the child to the breast are necessary for a good flow of milk, there is a most reprehensible habit that some mothers have of nursing the child whenever it cries or seems the least fretful; and, again, some will lie, with the child on the arm and the nipple in its mouth, all night long, a most pernicious procedure. These make bad babies, destroy the mother's rest and exhaust her strength.

The diet of a nursing woman should be generous and wholesome, rejecting such things as her experience has taught disagree with her. Her digestion should be promoted by the aid of tonics when necessary, and a little wine or malt liquor, according to her previous custom. I beg leave to make one sug-

gestion here, and that is that our bread is very much deteriorated by the modern process of making very white flower, from which most of the inorganic ingredients are removed. With the exception of water and the other inorganic materials, the important ingredients of the milk are manufactured from the blood in the mammary gland itself, and if these inorganic materials were more abundantly supplied than they are in the very white bread we use, a better supply of them would be furnished for the child and a freer flow of milk might be obtained, for it is a well known fact among dairymen that the off-fall, or bran from grain, when fed to cows, will produce a better and more liberal supply of milk than any other than green food. This may be taken as a pointer in the direction of using the brown bread which is made from unbolted flower, in cases where there is a deficiency in the lacteal secretion.

I think that, with due attention to these little details, much distress will be avoided; and with a mother who *may* nurse her child, give her proper food, keep her mind and body healthfully active, apply the child to the breast at proper intervals, and there will be opened an unfailing fountain of nutrition that will conduce to the health of both mother and child.

The Separation of the Placenta.

FEHLING, at the recent meeting of the German Society for Gynecology (*Münchener medicinische Wochenscrift*, No. 22, 1888), reported that he had examined the mode of separation of the placenta in 100 cases, in which no traction was made upon the cord.

In the great majority the placenta presented by its edge, as Duncan has described. In five cases it formed a cup-like body, as Schultze has reported. In these cases the membranes were separated on the maternal surface; in one-third of the other cases the separation occurred on the fœtal surface. When the placenta presented by its edge the cord was long; when a cup-like presentation of the placenta occurred the cord was short.

Fehling believes that the last uterine contractions which expel the child separate the placenta: the effusion of blood is acccidental, and slight in normal cases: such effusion is stopped by thrombosis. The uterine cavity becomes oblong after the placenta is expelled.

He discouraged traction on the cord and interference with the natural mechanism.

SCHATZ ascribed the placental presentation by its edge to uterine peristalsis.

WINCKEL had found two hours the average time required for *spontaneous* expulsion of the placenta: the placenta was cup-shaped; the place of insertion of the cord was anterior: the average blood loss was about seven ounces. The child makes traction on the cord, causing the cup-shaped presentation.

AHLFELD found the loss of blood, when the placenta was expelled spontaneously, twelve and one-half ounces, which ceased in five hours; there was no after-bleeding.

DOHRN had found it necessary to deliver the placenta (Credé's method) in only ten per cent. of his clinical cases: spontaneous expulsion was the rule.—*American Journal of the Med. Sciences*, August, 1888.

Pregnancy with Unruptured Hymen; Delivery through the Perineum.

The following account of this case, which occurred in the practice of PROFESSOR SLAVIANSKY-GRENSTRAND, is taken from the *Medical Press and Circular*, July 11, 1888: The patient, T. D., wife of an officer, consulted Professor Slaviansky on January 27, 1887, complaining of a rupture of the perineum, which had happened during her confinement. She was 23 years of age, and menstruated for the first time at 16, the periods being regular and free from pain. She was married in February, 1886. Coitus was always painful, and never gave rise to any sexual satisfaction. She had never lost any blood consequent on connection. She soon became pregnant, and experienced the usual troubles incidental to maternity. She felt the movements of the fœtus in the beginning of July. On December 12 labor began, and some hours later the midwife in attendance ruptured the membranes and delivered her of a diminutive male child, still living. The moment of delivery was accompanied by an extremely sharp pang, and she felt something give way. The child was born through a central rupture of the perineum. Delivery was followed immediately by a smart attack of hemorrhage, which was checked by pressure on the uterus. Considerable œdema of the perineum persisted for about a week, but there was no trouble of micturition. The menses re-appeared six weeks after delivery.

The patient was a badly nourished woman, with undeveloped breasts and deformed thorax. The dimensions of the pelvis were as follows: Between the trochanters, 12¼ inches; between the ischii, 3¾ inches; external conjugate, 6¾ inches. An examination of the external genital organs showed a circular orifice with inflamed and thickened edges in the centre of the perineum, which permitted the passage of the index finger without difficulty. A probe introduced through this orifice passed through the lower part of the posterior wall of the vagina and came out at the vulva. There was no communication with the rectum. On separating the labia majora, a circular hymen was seen, perfectly intact and strengthened by a medium band running from above downwards, and dividing the membrane into two parts, the left being the larger division.

The operation of perineorraphy was suggested to the patient as the only means of effecting a radical cure, but the thickened and inflamed condition of the perineal orifice rendered it necessary to postpone interference for two or three weeks. A further examination showed that the lower part of the band crossing the hymen was eroded and covered with granulations. On March 2, the operation was performed. By division of that part of the perineum intervening between the irregular aperture and the posterior commissure of the vulva, the tear was made complete. The cicatricial tissue of the edges was then snipped off, and the surface brought together and secured by fourteen sutures. Beyond a little fever, no outward symptom presented itself, and the wound healed entirely by first intention.

The expulsion of the fœtus through the perineum was probably brought about by its inherent weakness and the abnormal shape of the pelvis, which caused the expulsive force to be directed too far back.

Central ruptures of the perineum have been frequently recorded, and cases of delivery with the hymen intact are by no means rare. Most frequently the

hymen which has resisted the impact of coitus yields to the expulsive efforts of the uterus, and either stretches or tears. Dr. Cole recently published the case of a young woman 24 years old. Menstruation had never ceased, and she refused to believe herself pregnant. On examining her a hymen was found, with thick, semi-cartilaginous edges surrounding an orifice which only admitted the little finger with difficulty. Labor supervened, and in his presence the child was expelled through a gigantic laceration of the perineum.

Treatment of Convulsions in Children.

In a communication on this subject, SIMON (*Gazette Médicale de Paris*, March 3, 1888) lays down as a primary proposition that in every case of eclampsia in a child the condition of the urinary secretion should first be determined. In eclampsia the secretion of urine is entirely suspended, though a small quantity of urine, which may have been in the bladder, is sometimes ejected under the influence of the convulsion. As soon as the discharge becomes quite abundant the evidence is sufficient that the kidneys are at work again, and then active treatment can be discontinued. The abundant discharge of urine in eclampsia, as in many other disorders of the nervous system, is a critical phenomenon, which announces with certainty the approaching termination of the attack, though there may be a few more spasms before the attack is entirely ended. Since dyspepsia is the most common cause of eclampsia among children, a wise arrangement as to diet and hygiene is the most useful form of prophylaxis. Children, especially the more excitable ones, should also be spared as far as possible the conditions of extreme excitement which are so prevalent in modern society. The prophylactic measures against cerebral irritation may be summed up in the one word isolation. Simon does not endorse Trousseau's plan of avoiding all active treatment for convulsions. To Trousseau's objection that mustard-baths and similar means only irritate the patient, the reply is made that children in convulsions are completely insensible and unconscious, and hence the therapeutic means which are used cannot produce irritation. First of all, one's attention should be directed to the alimentary canal; an enema with glycerine or any other appropriate agent should be given, then vomiting should be excited by tickling the throat, or by administering a suitable quantity of syrup of ipecac, with powder of ipecac during an interval between the spasms. If these means are not effective, an enema may be given composed of:

Sodæ sulph	7½ drachms
Fol. sennæ	2 "
Aquæ	6½ fl. oz.
Mel. hydrarg	3 " "

If the attack still persists, inhalations of chloroform or of ether should be used, and these inhalations may be continued for hours if necessary. In the mean time, an enema may be given consisting of:

Chloralis	gr. xv
Tinct. moschi	gtt. xx
Aquæ	f ℥ jss

This should be administered in two doses by means of a glass syringe. If after this treatment the attack still continues, a mustard-bath should be prepared at the temperature of 100° F., into which the child must be immersed. This will

produce fluxion to the skin, and diminish the circulatory troubles which always accompany eclampsia. When the paroxysms have diminished and the child is able swallow, the following formula should be prepared:

℞ Potass. brom.....gr. xv
Moschi.....gr. jss
Aq. "cherry-laurel".....f℥ iv
Syr. codeini.....f℥ j
Syr. flor. aurantii.....f℥ j
Julip. mucil.....f℥ iij.

Of this a coffeespoonful may be taken every fifteen or thirty minutes, or every hour, according to the intensity of the spasms. Should the attack still continue, a vesicant 1¼ in. by 2¼ in. should be applied to the nape of the neck, and allowed to remain three hours; the wound should then be dressed with starch-poultices or other suitable dressing. Should the eclampsia be due to uræmia, the only remedy which will act rapidly and efficiently is bleeding. In children two to three years of age this may be accomplished by placing a leech behind each mastoid process; for older children five or six wet cups may be used in the region of the kidneys. In addition a hot-air bath may be given. To this treatment may be added the use of chloral, bromides, etc., as indicated.—*Archives of Pediatrics*, August, 1888.

Intestinal Obstruction after Ovariotomy.

Hirsch (*Archiv für Gynäkologie*, Bd. xxxii, Heft. 2) presents at length the results of his observations and studies on this important subject. Intestinal obstruction following laparotomy is due, he says, to three causes. It may be direct, where a coil of intestine becomes adherent to the abdominal wound, and occlusion results from the traction of the cicatrix. Secondly, simple aseptic peritonitis may follow the operation, resulting in the formation of adhesions which imprison the intestines, limit the peristaltic movements, and thus lead to fecal impaction and complete obstruction. Thirdly, without the occurrence of any inflammation whatsoever, a loop of intestine may be imprisoned between the pedicle and the pelvic or abdominal wall, especially after supravaginal amputation, when the stump is treated according to the extra-peritoneal method. Intestinal occlusion is comparatively common, Sir Spencer Wells having reported eleven deaths from this cause in one thousand cases of ovariotomy. Usually the obstruction occurs soon after the operation, but several years may elapse before the accident takes place. In one instance death from this cause occurred nine years after. The symptoms are those usually accompanying obstruction—persistent vomiting, constipation and tympanites. Death is preceded by symptoms of collapse; the pulse and temperature may remain normal, or there may be high fever, while no evidence of acute peritonitis is found at the autopsy.

The diagnosis is always rather obscure, so that the surgeon shrinks from reopening the cavity. Obstinate constipation and *fecal* vomiting are only positive signs, since vomiting, tympanites and failure to pass gas per rectum may be due to diffuse peritonitis, although in a mild degree they are a common accompaniment of abdominal operations before the bowels have moved. Obstruction is recognized most clearly when it occurs some days after operation. The

seat of the occlusion can sometimes be recognized by palpation, especially if it is in the neighborhood of the incision. There are more pain and vomiting when the small intestine is imprisoned, but less meteorism than is present when the large gut is occluded. Diminution of the daily quantity of urine and an increase in the amount of indican point to obstruction of the small intestine.

The prognosis is extremely unfavorable. Of the fourteen cases collected by the writer, only one recovered—after secondary laparotomy.

With regard to prophylaxis, he quotes from various authorities, notably Kaltenbach, Müller and Olshausen. The former advises spreading out the omentum carefully over the intestines, after separating all adhesions, avoiding injury of the parietal peritoneum (by bruising, the cautery, etc.), and closing the peritoneal wound accurately. Müller discards abdominal bandages after the operation, except in cases in which it is desirable to check oozing, and washes out the cavity with large quantities of sterilized water if there have been intestinal adhesions. Since Kaltenbach has irrigated with bichloride solution he has not seen a case of intestinal obstruction, while out of twenty-four in which carbolic acid was used there were three fatal cases.

The obstruction has been removed by washing out the stomach. An operation should be done early, if at all; when performed a short time after the primary laparotomy it offers the best results.—*American Journal of the Medical Sciences*, August, 1888.

External Revulsives in the Treatment of Lung Diseases in Children.

PIERRON (*Journal de Médecine*, February 19, 1888) says that when diseases of the lungs are manifested, it would seem as if routine practice would require the use of a vesicant to the chest, the feet, or the head; and in certain quarters one is not credited with much knowledge if such a plan is not carried out. Not that vesicants are useless in diseases of the lungs; on the contrary, they are the most efficient means of treatment in certain cases. Incidentally it is to be observed that lesions of the skin are regarded as discolorations, vesicles, bullæ, papules, pustules, etc., and when revulsives are used they present lesions which resemble more or fewer of the conditions mentioned, the skin being more or less changed, and the effect being classified according to the energy of action of the revulsive used.

Heat, either preserved or produced, is the first means for effecting revulsion, and may be produced by covering the chest with a thick layer of cotton, or with cotton plus a flannel bandage. The heat of the body will thereby be retained, perspiration will be encouraged, and an eruption upon the skin will be provoked.

A more active revulsive is the cataplasm, which acts as a mild, warm, and moist topical agent, and favors resolution. The crude essence of turpentine is a more active, more rapid, and more durable revulsive than the cataplasm, and its effect is superior to that obtained by the tincture of iodine. The effect of the turpentine may be prolonged by applying a thick layer of cotton over the chest after it has been used, and its volatility is so decided that the effect upon the lungs will be the more decided the more its vapors are inhaled.

Tincture of iodine is not regarded as a very useful revulsive for children;

if the quantity used is small the revulsive effect will be slight, while the use of a large quantity will produce great pain, and may be followed by severe reaction, and even by convulsions in very young children. The inhalation of the tincture of iodine as its volatilizes from the chest will have a favorable influence upon the lung disorder, the same as the turpentine. Cotton impregnated with iodine tincture may be used upon the chest, or the following mixtures may be prepared :

℞ Potass. iodati.....gr xv.
Potass. iodidi.....gr cl.
M. Aquæ.....fʒ iss.

℞ Acidi citrici.....gr cl.
M. Aquæ dest.....fʒ iss.

Sig.—Apply the first freely over the chest, let it dry, then apply the second, and free iodine will be liberated.

The various forms of sinapism constitute the revulsives of the next order of activity, and, as is well known, a powerful effect may be produced with mustard upon the skin and, by reaction, upon the general condition. For extreme conditions, such as impending asphyxia, in lung-diseases, the effect of sinapisms may be most useful. To obtain the useful revulsive effect of sinapisms without the pain which so often accompanies their use, one may substitute a hot flat-iron, which may be passed rapidly over the chest, protected by a piece of flannel, until a sufficient degree of erythema has resulted. Various forms of vesicating paper are in the market, some of which are serviceable for pulmonary disease in children, while the more violent ones should be avoided.—*Archives of Pediatrics*, August, 1888.

The Apex Beat of the Heart in Children.

Dr. Gundotin, of Moscow, has noted the position of the apex beat in 300 children. In 14 cases it was felt in the fourth intercostal space; in 60, in the fourth and fifth; in 220, in the fifth; and in the remaining six, in the sixth. In 100 children, it was in the mamillary line; in 80 cases, it lay outside, and in 30 cases, inside that line. He has made the interesting observation that the position of the apex beat with regard to the mamillary line depends upon the relative lengths of the three diameters of the thorax, *i.e.*, the antero-posterior, transverse, and vertical. At birth these diameters are of the same length, viz., about 3½ inches. As growth advances the antero-posterior diameter increases less rapidly than the transverse. So long as these two diameters are equal, the apex beat always falls outside the mamillary line. When the difference between them reaches two and a half centimetres, the apex beat lies in the mamillary line; when the difference amounts to five centimetres, the apex beat lies within this line. During the first year of life, it was always outside the line; at two years, it was still outside the line in 90 per cent. of the cases; at three years, in 28 per cent.; and at five years in 5 per cent. it was still outside. In all the cases between the ages of five and eight years it fell on the line. A year later 10 per cent. were found to have the apex beat inside the line, and the proportion gradually increased, until at the age of thirteen years this relation existed in 85 per cent. of the cases examined. The height of the apex beat depends in every case on the position of the diaphragm. The mamilla itself was found to vary somewhat in position; in only 65 per cent.

of children with the same thoracic circumference did it lie at exactly the same distance from the middle line; in the remaining 35 per cent. it varied from $\frac{6}{16}$ to $\frac{10}{16}$ inch. The distance of the apex beat from the middle line varies with the age of the child, gradually increasing from 2 inches at eighteen months to $3\frac{1}{8}$ inches at thirteen years. The author found these relations to vary only where there existed some pathological condition of the heart.—*Edinburgh Medical Journal*, June, 1888.

Lactation by Gavage for Premature Infants.

LEGENDRE (*Revue Mens. des Mal. de l'Enf.*, April, 1888) says that in those cases in which it is evident within a few hours after birth that the infant has not sufficient strength to suck, one must not hesitate to come to his relief and introduce food into the digestive cavity. According to Tarnier, if the weight of the infant is between $1\frac{3}{4}$ and 5 pounds, there is usually congenital weakness. There are other indications in addition to lightness of weight by which congenital weakness can be diagnosticated,—for example, a bright and uniform redness of the skin, with unusual transparency; shrill and monotonous, though feeble, cries; and respiratory movements that are scarcely visible. The infant being unable to nurse, the best food which can be given to it, is, of course, woman's milk, undiluted. If that cannot be obtained, one may give asses' milk, unboiled, diluted with half its volume of distilled water, adding 45 grains of sugar to 3 fl. oz. of milk and water. If asses' milk cannot be had, one may use a mixture of one part cow's milk to three of sugar-water. The cow's milk should be boiled, or else warmed for an hour in a vessel placed in another vessel of boiling water. It should be lukewarm when administered. At first an effort should be made to feed the infant with a spoon, giving two or three coffee-spoonfuls each time, and feeding at least twelve times in the twenty-four hours. If the child is to be fed by the nose, it must be held horizontally upon the arms, while a nurse pours the milk from a coffee-spoon, first into one nostril and then into the other. At first this should be done every hour during the day, and every two or three hours at night, three or four coffee-spoonfuls being given at first, the quantity being gradually increased to ten or twelve. This method is practicable only when great care is used and when deglutition is properly performed. Therefore it cannot be used with very feeble children. The method of gavage, advocated by Tarnier, is much more generally used and more effective, and consists in holding the infant horizontally upon the nurse's knees, the head being slightly raised; a small soft rubber catheter is then introduced into the mouth and pharynx, and if not swallowed by ordinary deglutition, is forced gently down the œsophagus to a distance of six inches. To the distal end of the sound is attached a small glass receptacle containing the quantity of milk which is to be administered, and when the sound has reached the stomach the distal end is raised, and the milk allowed to run into the stomach. The sound is then quickly removed and the child placed in a warm bed. Hypernutrition must be carefully avoided, as it would be likely to cause gastro-enteritis. The gavage should be gradually discarded for the breast as the strength of the child will allow it. By this method of nutrition Tarnier hopes to be able to save infants born a little before the end of the sixth month.—*Archives of Pediatrics*, August, 1888.

Carcinoma of the Fallopian Tube.

ORTHMANN read a communication on this subject before the Gynecological Society of Berlin (*Centralblatt für Gynäkologie*, May 26, 1888). Alluding to the fact that Kiwisch had found carcinoma of the tube only eighteen times in seventy-three cases of cancer of the uterus, and Dittrich in only four cases out of ninety-four of general carcinomatous disease, Orthmann stated that his researches in the literature of the subject had yielded accurate descriptions of only thirteen cases, in nine of which the uterus, and in four the ovaries were primarily affected. The medullary form of cancer is most common; it may originate in either the mucous, muscular or serous coat of the tube. Papillomata of the tube (recently described by Doran) may readily be mistaken for malignant growths. Three cases of carcinoma tubæ occurring in Martin's clinic were described, in one of which the disease was primary. Orthmann concluded from this that primary cancer of the tube does occur, although in the great majority of cases it is secondary to disease of the uterus. In the discussion which followed, Ruge said that he had never seen a case of primary carcinoma tubæ; he was inclined to believe that disease of this duct is more often secondary to malignant affection of the ovaries than to cancer of the uterus.

Winter recalled an interesting case of carcinoma of the ovary, in which the disease appeared to have spread by contiguity to the adherent abdominal end of the tube, the rest of the latter being perfectly healthy.

Olshausen cited a case of double ovarian tumor, in which, after removal of the cysts, a mass as large as a hazelnut was found in the left tube; microscopically it showed the structure of endothelioma. Olshausen thought that the distribution of the lymphatics explained the fact that the tubes share so rarely in malignant disease of the ovaries.—*American Journal of the Medical Sciences*, August, 1888.

The After-Treatment of Tracheotomized Children.

ROSER (*Revue Mens. des Mal. de l'Enf.*, June, 1888) says that of forty-seven diphtheritic patients tracheotomized during the past three years at the Marburg surgical clinic there have been fifty-three per cent. of recoveries. These favorable results were due to the use of a canula which was provided with an iodoform tampon. It is well known that the diphtheritic process advances step by step, the same as erysipelas, and the author believes that the iodoform tampon in the trachea with the canula constitutes a barrier which the diphtheritic inflammation in the larynx cannot pass. The canula is prepared by surrounding it with a muslin bandage about four inches long and two inches wide, which has first been moistened in a solution of sublimate. While it is still moist it is sprinkled with powdered iodoform. This forms a crust, which adheres more or less firmly to the canula. When the instrument, thus prepared, is inserted into the trachea the muslin swells again, and thus an antiseptic tampon opposes the development of the infectious process in the surrounding tissue. The canula, with its tampon, must exactly close the lumen of the trachea. Its calibre will therefore vary with the age and size of the patient. It should be left in the trachea two days, and then it should be replaced by a fresh one, which may remain until the fifth day. The advantages of this canula are that gangrene will be prevented, hemorrhage

from or into the trachea cannot take place, nor can tracheal granulations form. It also tends to prevent necrosis of the cartilages, and hinders particles of food from getting into the respiratory passages, especially in cases in which the muscles of the pharynx are paralyzed. When diphtheritic false membranes have surrounded the trachea, attempts to dislodge them, which are usually made with an elastic catheter, often result in fixing the foreign body yet more firmly. For such conditions the author has devised an instrument, consisting essentially of a soft, flexible urethral bougie, upon whose extremity is a ring $\frac{1}{12}$ or $\frac{1}{10}$ inch in diameter. This instrument can be readily introduced into and around the larger bronchi, the ring being worked against either wall, and fragments of membrane can thus be easily detached and removed. Only in exceptional cases should an aspiratory syringe be used to remove obstructions from the smaller bronchi. Before proceeding the author instils ten or twenty drops of sublimate solution into the trachea.—*Archives of Pediatrics*, August, 1888.

The Results which follow Tracheotomy in Children for Laryngeal Diphtheria.

NEUKOMM, in discussing this question (*Arch. di Patol. Inf.*, May, 1888), says that during a period of three years tracheotomy was performed two hundred and three times at the surgical clinic in Zurich upon children who suffered from croupous laryngitis; there were eighty-one cures. The subsequent histories of seventy-nine of these were obtained, and of that number fifty-eight remained in perfect health, the remaining twenty-one showing some alteration in the respiratory apparatus. In eight of the cases there were apparent defect in the union of the cricoid with the thyroid, while the others showed morbid sensibility in the cicatrix resulting from the operation, and a certain degree of vocal disturbance due to defective performance of the functions of the crico-thyroid muscles. In two of the cases, in which death occurred after the patients left the hospital, this result took place, in one of them, five months after recovery from the operation, and in the other it took place in connection with a paroxysm of suffocation, which was probably due to the presence of fungous granulation-tissue in the trachea. The cicatrix, which was rhomboidal in form in most of the cases, showed a tendency to descend towards the side of the sternum. Alterations in the voice were somewhat more frequent after crico-tracheotomy than after simple tracheotomy. In six children who showed considerable development of the thyroid gland at the time of the operation, there was reduction of this hypertrophy after complete recovery from the operation.—*Archives of Pediatrics*, August, 1888.

Menstruation after Double Oophorectomy.

An interesting discussion on this question took place at a recent meeting of the Leipzig Obstetrical Society (*Centralblatt für Gynäkologie*, June 2, 1888). It was introduced by HENNIG, who announced at the outset that he agreed entirely with Bischoff's theory of menstruation. So long as it was certain that no remains of either ovary or a supernumerary gland were left at the time of operation, a periodical discharge of blood from such patients must be regarded as abnormal. He was inclined to believe that a small portion of the cortex of one ovary, containing Graafian vesicles, might be included in the ligature.

In the subsequent discussion, Sänger stated that out of forty cases of castration he had observed continuous periodical hemorrhages in only two, in one of which the persistent flow was due to retro-displacement of the uterus; it ceased after hysterorrhaphy had been performed. The speaker concluded that when no other "focus of irritation" is present, persistent menstruation after castration can only be due to some disease of the uterus.

Zweifel cited a case of recurring hemorrhage after double salpingo-oöphorectomy, which eventually ceased spontaneously. He believed that the metrostaxis would always cease in time, and that such would be found to be the after-history of most of the reported cases of persistent menstruation.—*American Journal of the Medical Sciences*, August, 1888.

Salicylate of Bismuth in the Treatment of Disease in Children.

EHRING, in the *Jahrbuch für Kinderheilkunde*, xxvii, 4, says that he used Merck's preparation of salicylate of bismuth, which contains sixty-three per cent. of oxide of bismuth. The author made careful observations in one hundred cases, including dyspepsia, acute and chronic gastric catarrh, gastro-intestinal catarrh, intestinal catarrh, enteritis, dysentery, etc., the children being of all ages up to ten or twelve years. The bismuth was given with water, 1 part to 20, with 10 to 20 parts of glycerine, syrup, or mucilage, and an equal quantity of red wine; it was given in teaspoonful doses every two hours. Troublesome flatulence, accompanied with bad-smelling gas in the intestine, was relieved by this treatment. Constipation is not a contraindication to its use. It has been satisfactorily shown that the salt is quickly broken up after its ingestion and reabsorbed, salicylic acid not being found in the feces. Symptoms of intoxication from this drug were never seen, but it should not be given in the form of a powder, as it might cause ecchymoses upon the gastric mucous membrane.

Solger, who experimented with salicylate of bismuth, observed that in cases in which there was poor nutrition, and also constipation, with general *malaise* and coated tongue, it caused pain in the stomach and abdomen, the tongue became dark gray in color, and finally there were symptoms of salicyl poisoning.

All accounts tend to show that while this drug is no *panacea* for gastric and gastro-intestinal catarrh, it is sufficiently valuable to be of service in many cases. It was often found that the results were better when this treatment was combined with irrigation of the stomach and intestines. No unpleasant results followed the proper use of the bismuth even for long periods. The fact that the urine is strongly acid during this treatment suggests that the drug may be of value in the treatment of cystitis.—*Archives of Pediatrics*, August 18, 1888.

V. SURGERY.

Fracture of the First Rib Alone.

F. MARSH, F.R.C.S., Surgeon to Queen's Hospital, and Demonstrator of Anatomy in Queen's College, Birmingham, in a communication to the *Lancet*, June 30, 1888, says that Mr. Arbuthnot Lane, Senior Demonstrator of Anatomy in Guy's Hospital, has shown that fracture of the first rib alone is not so rare an accident as would be inferred from a study of our standard surgical authors. He has found four *undoubted* examples of this injury in less than 200 subjects consecutively examined in the dissecting-room of Guy's Hospital. The subjects were adult and well developed, and in each case the fracture occurred on the right side and in the following places: Case 1 (female). One inch and a quarter external to the tubercle. Case 2 (male). At a point corresponding to the subclavian groove (ununited). Case 3 (male). At the site of the insertion of the scalenus medius. Case 4 (male). Immediately internal to the facet for articulation with the transverse process of the dorsal vertebra. One other case has been recorded by the late Mr. Lyell, in the article on "Injuries to the Chest" in Holmes's System of Surgery, third edition. This was in a child who was run over, the left first rib being fractured posteriorly near the neck. We thus see, he says, that a fracture of this rib may take place almost at any point, but as yet there are not a sufficient number of cases to show the most common site. The fracture may be caused by direct or indirect violence, and three methods are suggested by Mr. Lane: (1) by direct violence to posterior portion of rib; (2) by force applied to the manubrium sterni; and (3) by force transmitted through the clavicle. For full details and experiments on the cadaver the reader is referred to the articles by Mr. Lane.

Undoubted cases of fracture by methods 1 and 3 have come under Mr. Marsh's notice, and he is of opinion that if a fracture of the first costal arch, rather than of the sternum, is caused by method 2, the cartilage, if ossified, and not the rib itself, will probably be fractured, unless at the same time a counter force is applied to the dorsal extremity of the arch. In answer to the question how it is that this fracture has not been recognized during life, he refers to a specimen of fractured first rib, shown before the Midland Medical Society by Mr. A. F. Messiter last session. It was taken post-mortem from a man who had been run over, several of his ribs on the right side being broken and the lung perforated. The clavicle was intact. Death took place soon after his admission into hospital. There was an almost transverse fracture through the middle of the rib, but the periosteum on one surface was intact, and would have prevented any displacement. Now, Mr. Lane has shown from his numerous experiments on the cadaver[1] that these fractures are usually incomplete, so that Mr. Marsh

[1] *Loc. cit.*

thinks we may fairly conclude that displacement is the exception and not the rule. In the absence of displacement the symptoms can be but slight, possibly not sufficiently urgent to cause the patient to seek surgical advice. There will be localized pain, varying with the extent of the injury, sometimes vaguely referred to the shoulder, girdle, raising the arm, lifting a weight, etc., but always determinable and definitely localised by careful manipulation, especially in the supra-clavicular fossa. In the more severe cases, and when the fracture is complete, pain will be felt in addition during ordinary or deep respiration, on coughing, and on putting the scalene muscles into action.

Crepitus may also be obtained, he says, when the fracture is complete and through the anterior half of the rib, by fixing the cartilage as far as possible and moving the rib in the supra-clavicular fossa. Any injury to the lung or pleura will, of course, exhibit the symptoms usual in such injuries. The subclavian and axillary vessels have hitherto escaped implication. The diagnosis must be made from contusions of the shoulder, scapula, and clavicle; they are often co-existent, and may mask the rib injury in the slighter cases. The treatment Mr. Marsh has employed in the few cases that have been under his care, is to bandage the arm, as in fractured clavicle, thereby preventing movement, removing the weight of the arm and elevating the clavicle, and in a complete fracture through the anterior half, well padding the supra- and infra-clavicular hollows.

In a paper read before the Staffordshire Branch of the British Medical Association in May, 1887, Mr, Marsh says he recorded one undoubted case of complete fracture of the right first rib alone, evidently caused by force transmitted through the clavicle; the symptoms were those described above, and crepitus was plainly felt; in fact, the diagnosis was mainly due to discovering this crepitus whilst manipulating the shoulder and clavicle. Not having then read Mr. Lane's contributions, he was surprised at such an unusual and rare fracture. Two other cases were referred to in that paper, both probably caused by force transmitted through the clavicle. In both instances other ribs were broken. One was a woman who fell down a flight of stairs, finally pitching on to her left shoulder; two or three lower left ribs were broken, and there was every symptom of an incomplete fracture of the first left rib without displacement. The other was a man who had been knocked down and severely kicked, two of his lower true ribs being fractured, and on the same side the physical signs of fractured first rib. One other instance also came under Mr. Marsh's notice, which is doubly interesting. It illustrates, he says, not only a fracture of the first rib alone posteriorly by direct violence, but the pressure effects of carrying a bulky weight on the shoulder.

J. H——, sixty-one years old, was admitted July 2, 1887, with the following history: He was following his occupation of trusser of hay, when a large truss fell from a height, the edge of it striking him posteriorly at the junction of the neck and shoulder of the left side. Localized pain whenever he attempted to lift anything caused him to apply for relief. Little if any pain was experienced when the arm was at rest. On examination, one was at once struck with the distance of the superior angle of the scapula from the cervical vertebræ on the left side compared with the other one. The man was in the habit of carrying large trusses of hay on this shoulder, with the arm raised to steady and support

them. The bulky weight had caused an almost lateral curvature of the lower cervical and upper dorsal vertebræ, with a certain amount of vertical rotation; the raised position of the arm depressed the superior angle of the scapula, and the muscles from the scapula to the vertebræ were elongated; consequently the first rib posteriorly was unprotected by the scapula, and the hard board-like edge or corner of the heavy truss striking him in this very region had evidently produced an incomplete fracture of this rib. There was no marked contusion of the soft parts, the pain was not superficial, and on careful manipulation could be localized just external to the tubercle of the first rib, and was produced by pressure in this spot and by moving the rib in the supra-clavicular fossa or with the shoulder girdle. No crepitus could be distinguished.

These four cases occurred, Mr. Marsh says, during the last six months he occupied the post of casualty surgeon to the Queen's Hospital; and, as the number of causualties, coming under his notice in that time would be at least 3000, the proportion is very much smaller than one would expect from the percentage of specimens obtained from Guy's Hospital dissecting-room. It is possible that one or two cases may have been overlooked; the number, however, as he very properly says, is sufficiently large to bring the injury into the domain of practical surgery, and to show the necessity of a careful examination of the first costal arch in all cases of shoulder injury exhibiting only the symptom of pain.

Treatment of the Pressure Paralysis of Pott's Disease by the Plaster-of-Paris Jacket.

Dr. Henry Hun, Professor of Diseases of the Nervous System and of Psychological Medicine in the Albany Medical College, in a communication in the *Albany Medical Annals*, July, 1888, says: Fixation and extension of the vertebral column by means of either plaster-of-Paris jackets or iron braces is, in this country at least, the almost universal treatment of Pott's disease. The same treatment is also the most efficacious that we possess for the compression paralysis due to Pott's disease, and it seems strange that Strümpell, in his excellent "Text-Book of Medicine," American edition, p. 581, should speak in such doubtful terms of the value of this form of treatment in such cases. The following cases show the value of the application of these jackets in such cases:

"*Case I.*—H. G., 8½ years old, entered Child's Hospital March 20, 1884. During the past three years there has been an angular curvature in the upper dorsal region of the spine. During much of the time the boy has been running about and playing, but frequently he had such severe pain in his back that he was obliged, on account of it, to lie in bed for a few days or weeks at a time. In February, 1884, he commenced to lose power in his legs, and at the end of a week he was unable to walk at all. On entrance into the hospital the patient could neither walk nor stand, but he was able to move his legs feebly. The cutaneous and tendon reflexes were exaggerated. There was no disturbance of sensibility and no disturbance in defecation or micturition. There was an angular curvature in the spine extending from the first to the sixth dorsal vertebra, with a corresponding bend in the sternum.

"The patient was kept in bed, and the galvanic current was applied to the spine and legs daily for a couple of months, during which time there was no

improvement. In June a plaster-of-Paris jacket was applied. Soon afterwards his legs began to grow stronger, and in August he began to walk. In October both the sensibility and the motion of his legs were perfect, but both the superficial and the deep reflexes continued exaggerated. He can walk and run either with or without his plaster-of-Paris jacket, although this is still applied. In March, 1885, not only was the motion of his legs perfect, but the reflexes had returned to their normal condition, and were no longer exaggerated. Towards the end of March the boy left the hospital, but I have heard of him frequently since. He continues well, and earns his living by selling newspapers.

"*Case II.*—E. M., 27 years old, a moulder, entered St. Peter's Hospital, May 20, 1884. Family and personal history good. The only possible cause that he can assign for his sickness is that he sometimes used to expose himself to the cold in wet clothes. About two years ago he began to notice a soreness in the middle dorsal region of his back and a feeling as of an iron band about his chest on a level with his nipples. Whenever he coughed or sneezed this band was very painful. In February, 1884, he commenced to feel a numbness in his feet, and this numbness gradually extended over the entire lower portion of the body up to the band about his chest, and at the same time his legs became weak. In May the patient could walk only with great difficulty with two canes, and when so walking his whole body trembled violently. He could not stand on either leg alone, and could scarcely stand on both feet. Slight anæsthesia to tactile sensations below the band about chest, and some loss of muscular sensibility in the legs. Sensibility unimpaired for painful and thermic impressions. Exaggerated knee-jerk and ankle-clonus in both legs. The plantar and cremasteric reflexes were also increased. No disturbance of motion or sensation in any part of the body above the band about the chest. There is a slight angular curvature of the spine, with projection backwards of the spinous process of the sixth dorsal vertebra. On May 24 a plaster-of-Paris jacket was put on, and the galvanic current was applied to the spine during a couple of weeks, one sponge being applied above, the other below the jacket.

"After the application of the jacket the patient steadily improved, and in November, 1884, he could walk perfectly well without a cane, and thought that he could walk two or three miles without difficulty, and said that his legs felt nearly as strong as ever. Sensibility of all kinds and the cutaneous reflexes were normal. Exaggerated knee-jerk and ankle-clonus were still present in both legs. In January, 1885, the knee-jerk was normal, and there was no ankle-clonus. In March, 1885, he ceased wearing jackets, and during the years 1885 and 1886 he felt perfectly well and did light work. In the fall of 1887 he developed pulmonary tuberculosis, which steadily progressed and caused his death, without any return of the paralysis, in March, 1888.

"*Case III.*—C. W., 9 years old, entered the Child's Hospital June 19, 1883, with the history that her back had been diseased for two years, and that her legs had been paralyzed for the same length of time. She presented an extreme degree of angular curvature of the spine, extending from the third to the ninth dorsal vertebra, the spinous process of the sixth being the most prominent. There was a sharp bend in the lower part of the sternum corresponding to the spinal curvature. Below the first lumbar nerve there was complete motor par-

alysis and anæsthesia and almost complete analgesia.. Plantar reflex was increased. There was greatly exaggerated knee-jerk and ankle-clonus in both legs. Legs were blue and cold, and there was slight œdema of feet. There was no disturbance in the acts of micturition or defecation. There was no disturbance of motion or sensation in head, arms or thorax.

"The galvanic current was applied daily to the spine for many months without causing any improvement. In the summer of 1884 the application of plaster-of-Paris jackets was commenced. In the fall the patient was able to move her legs slightly. Her legs were rubbed and moved passively, and she was urged to move them. She slowly but steadily improved, and in February, 1885, she was able to stand alone, and could walk by resting her hands on a chair. She showed a strong tendency to walk on her toes, and her legs vibrated, but she was able to bring her heels down to the ground and to walk on the soles of her feet. Sensibility to tactile, painful and thermic impressions was normal. Knee-jerk and ankle-clonus continued to be exaggerated. About the first of April she was attacked by pneumonia, and died on April 8, 1885.

"At the autopsy there were found a recent general adhesive pleurisy on both sides, a general œdema of both lungs, and a pneumonia of the lower lobe of the right lung. The upper dorsal vertebra were carious and so destroyed that the finger could easily be thrust through them from the spinal canal into the pleural cavity. In the spinal canal in the upper dorsal region was a large quantity of cheesy matter in which the anterior half of the spinal cord was imbedded. The cord at this point was slightly softened, and above and below this point the cord presented the microscopic appearance of an ascending and a descending degeneration respectively.

"In each of these cases the improvement must be ascribed to the plaster-of-Paris jacket. There was no medicine given, and the galvanic current was used for too short a time in the second case to have been of any benefit, while in the first and third cases when used alone for a long time it produced no good effect. In the first two cases, in which the paralysis was never complete, the patients recovered perfectly their lost power of motion and sensation; and in the third case, in which the paralysis of motion and sensation was complete, the patient was apparently going on to a perfect recovery when an attack of pneumonia caused her death. The fact that in the second case tuberculosis developed in the lungs and caused the death of the patient does not invalidate the claim of the case to be considered one in which the compression paralysis was cured by the repeated application of plaster-of-Paris jackets. In each of the cases the exaggerated tendon reflexes were the last symptom to disappear.

"Quite a number of observers, in this country especially, have reported cases similar to the above to show the value of extension and fixation of the spine in the compression paralysis of Pott's disease; and although some advise that, in addition to the jacket, iodide of potassium should be administered in large doses, yet these three cases, in which no iodide of potassium was given, show that the jacket is the more essential factor of the two in producing the cure.

"We have, then, in the plaster-of-Paris jacket an agent of the greatest value in the treatment not only of Pott's disease, but also of the paralysis which this disease sometimes causes."

Elements of Success in the Operation for Cleft Palate.

HOWARD MARSH, F.R.C.S., Eng., who has had great experience as Senior Surgeon to the Hospital for Sick Children, says in the *Lancet*, July 7, 1888: It is generally agreed that the plan of operating for cleft palate which Mr. Thomas Smith has introduced, and which includes the administration of chloroform and the use of the special gag which he has invented, is, in the hands of those who are familiar with it, one of the most satisfactory of all plastic operations. Cases, however, sometimes present themselves which show that there are certain particulars which still require to be advocated. Patients are not rarely admitted into the hospital in whom a previous operation has failed, apparently from the omission of some essential point, while in other instances the opinion has been expressed that the condition of the palate was so unfavorable that no operative treatment ought to be undertaken; and yet these cases presented no feature of unusual difficulty, and were subsequently cured by a single operation. I think, with these examples in view, it may be useful to state the circumstances upon which success mainly depends.

1. In the first place the age of the patient is very important. The mistake sometimes made is that of operating too early. No doubt it is possible to cure the slighter forms of cleft of the soft palate in children who are only a few months old. But even in the most favorable cases failure will be more frequent than success. Even when the cleft is limited to the soft palate the operation had better be postponed till the child is between two and three, or older still, unless he is well grown and strong. In cases in which the hard palate is involved operative treatment should be deferred till the child is at least three and a-half. In the average run of cases it is better not to operate till the patient is between four and five. No doubt the sooner the operation can be performed with success the better, especially because the improvement in articulation will then be most marked. The fact is, however, that when done earlier than the time I have mentioned there is a great chance that the operation will fail, and then future cure will be rendered much more difficult. Besides, the operation is so considerable that in very young children it is by no means free from danger to life. In instances in which the local conditions are very unfavorable (these are mentioned below) the operation should be delayed even beyond the fifth year, for, as growth proceeds, the fissure will tend to become narrower and the soft parts more fleshy and firm. Several cases have come under notice in which, though when the children were three years old the possibility of closing the fissure seemed very doubtful, all the conditions had become favorable when the patients had reached the age of six. Indeed, were the mere closure of the palate the only question, there is no doubt that the best age for operating—I mean the age at which the risk of failure would be least—would be between nine and twelve. Of course, there are many reasons for operating earlier; but the fact remains that in difficult cases the chance of success steadily increases as childhood advances.

2. Care must be taken to see that the patient is in good general health before the operation is performed. The temperature should be taken morning and evening for two or three days before it is proposed to operate, and if it is not absolutely normal the operation should be postponed. Care must also be used to ascertain that the child has not been exposed to any of the exanthemata, espe-

cially scarlet fever. Should the patient have a cough, no matter how slight, or diarrhœa, the operation ought to be postponed.

3. After the age and health of the patient come the width and the shape of the fissure and the conformation of the bones at the roof of the mouth. The mere antero-posterior extent of the cleft is immaterial. It is quite as easy to close a fissure that involves the whole length of the hard palate, as it is to close one of similar width that involves only the posterior part. Indeed, it is sometimes easier, because the closure of the anterior part removes tension from the sutures posteriorly, where union is most likely to fail. The really important points are the width of the fissure, the shape of its anterior end, and the height or pitch of the arch of the hard palate. As to the width of the cleft, it is obvious that, other things being equal, the wider the cleft the more difficult it will be to close it. As to the anterior end of the cleft, when this is pointed like a thin wedge the shape is favorable; but when the anterior end is rounded like the bow of a hairpin, even though the cleft further back is not very wide, the difficulty of closure will be considerably increased. As to the height of the palate and the shape of the arch, the higher the arch and the more it approaches the perpendicular—the width of the cleft remaining the same—the easier will the closure be; while the lower the arch the more difficult does closure become.

Supposing that the operation is performed in accordance with Mr. Smith's published directions, there are several points that have a considerable effect on the result. The first is that when the edges of the cleft have been pared the soft parts on either side should be freely separated, not only from their general connections with the bones which they cover, but especially from their line of attachment to the posterior border of the horizontal plate of the palate bone—that is, along the transverse line of junction of the soft with the hard palate. As this line of attachment is very firm, separation must be effected by the free, though careful, use of blunt-pointed curved scissors, employed first to divide the structures along this line, and then, their blades being closed, as an elevator to complete the separation further forward, if this has not been already done. When this proceeding has been thoroughly carried out, the palate will hang in a flaccid state in its whole length, and in favorable cases its edges will admit of easy approximation. Another point is that when the cleft is extensive the soft parts should be detached from the bones, not only along the borders of the cleft, but outwards and forwards nearly to the teeth. Unless this is done, the rapid reunion that takes place between the soft parts and the bones will tend to restore the former to their original position, and will thus produce mischievous traction on the line of sutures. This wide detachment of the soft parts—varying, however, of course, with the extent of the cleft—will do no harm, for as blood reaches them chiefly from the sides (the branches of the posterior palatine artery running not far from the alveolar border) their mere separation does not materially injure their vascular supply. Another point is the relief of tension on the line of sutures by making lateral incisions. Those who operate only occasionally are a little uncertain as to the length to which the cuts should extend and the exact way in which they should be made, so that they are apt to cut either so freely as to endanger the vitality of the palate, or so sparingly that tension is not sufficiently relieved. The rule is that the incisions should run

from before backwards and a little outwards, midway btween the sutures and the alveolar border of the palate. The whole thickness of the palate should generally be divided only in the anterior half of the incision. In the posterior half it will be enough to divide merely the mucous membrane without cutting deeply into the other layers. By this course the large branches given off from the posterior palatine artery are preserved to supply the tissues, and the possible danger of injuring the posterior palatine artery itself is avoided. The relief of tension obtained by this proceeding is shown by the extent to which the edges of the divided mucous membrane immediately retract. The precise length of the lateral incisions will vary in different cases; the guide must be the amount of tension that has to be relieved. This can best be ascertained by examining the palate, after the edges of the cleft have been brought together, with the tip of the finger; and the operator must prolong the incisions until he finds that the parts have become distinctly flaccid, and that they no longer give the sensation of a tense dome, and that none of the sutures have the appearance of dragging. When the soft parts are scanty, and it is found that as the sutures are passed there is considerable tension, or even that the edges cannot be brought together, it will be best to make the lateral cuts at once, and then, except in cases in which the operation had better not have been attempted, the parts will come together. As to the sutures, these should be of silver for the hard palate, and of horsehair, mainly or exclusively, for the soft; and the first to be passed should be a fairly deep silver suture, obtaining a secure hold, at about the junction of the hard with the soft palate. Then the soft palate should be closed to the tip of the uvula; and, lastly, the hard from behind forwards. If the sutures in the hard palate are producing marked tension, they should be only loosely twisted for the moment, and should be tightened with torsion forceps only after the side cuts have been made.

For four or five days after the operation the child should be fed exclusively upon milk and beef-tea, with a little brandy added to the milk if this seems necessary. From the sixth day to the fourteenth he may have, in addition, fine bread crumbs well softened in gravy; bread sauce, made by scalding finely-grated bread crumbs in milk; potato finely minced in gravy or beef-tea; corn-flour, or ground rice puddings made with milk and eggs, or soft custard pudding. Only when the palate has healed, and the sutures have been removed should solid food be allowed. As harm may be done by asking the child to open his mouth to show how the palate is getting on, it is best to follow the plan of requesting that no one should look at the palate for the first week. Looking can obviously do no good; for even if union is failing to take place nothing can be done. The best chance always is to keep the palate at complete rest. Should the child flag, or look pale, or not take his food, he should, even on the second or third day, if the weather is warm, be sent out for a drive—if this can be done—twice a day; or he should be allowed to be up and walking about, for this will do no harm if he is carefully watched. Several times I have followed this plan with advantage. When children are evidently doing well, they may be kept in bed, where they are most easily managed, for a week, and then allowed to be up. As a rule, no local application should be made to the palate. Certainly there should be no syringing. Sometimes, however, chlorate of potash may be usefully added to

the milk, in which it is nearly tasteless, or the mouth may be rinsed with a 2 per cent. solution of boroglycerine. The sutures are sometimes, I believe, removed much too soon. As a rule, they should not be taken out till the tenth day. It will do no harm to leave them in a fortnight. It is remarkable how much closure may occur by granulation in cases in which primary union has partially failed. In several cases, though at the end of a week only a narrow bridge remained between the two edges of the cleft, complete union has subsequently occurred by the gradual extension of granulation.

But little assistance, in regard to prognosis, in particular instances, can be derived from statistics in such an operation as staphylorraphy. Each case must be judged upon its own merits. It may, however, be said that in instances in which the patient has reached an appropriate age, and is in good health; in which the soft parts are fairly abundant; and in which the details alluded to above receive attention, failure will be so rare that operative interference may be confidently recommended. I have made no reference to other forms of operation that have been recommended by different writers, for, so far as I have been able to judge, the proceeding devised by Mr. Smith is by far the best with which I am acquainted.

Nephrectomy for Sarcoma.

At the meeting of the Kentucky State Medical Society, July 11, 1888, Dr. W. O. Roberts, of Louisville, reported a case of nephrectomy for sarcoma. The patient was a German girl, five years and six months old, whose family history had been good. She complained for a considerable period of pain in the abdomen. She then had scarlet fever and then a tumor was detected in the left side of the abdomen just beneath the ribs and about the size of a fist. It was thought to be an enlarged spleen and treated accordingly. The tumor increased in size, downward, forward, and inward. The child complained of pain, referring it to the belly and to the back. She became greatly emaciated, and the outlines of the tumor could be readily made out. Its anterior surface was somewhat nodulated. Nothing abnormal appeared in the urinary secretions. A number of medical men saw the case, and all agreed that the only relief was in the removal of the tumor. An incision was made in the median line six inches long, with the umbilicus as the centre. The tumor was found situated behind the peritoneum, and resting on its anterior surface was the colon, which was entirely empty. It was at once apparent that the left kidney had to be dealt with rather than the spleen. Notwithstanding, the fact that the tumor was situated outside of the peritoneal cavity it had pushed the small intestines deep into the pelvic cavity and produced enormous distension of the vessels of the mesocolon. This was now divided by the scissors, and the edges caught with the forceps so as to guard against hemorrhage. Adhesions between the tumor and the peritoneum were broken up, and a trocar and canula pushed into the growth. A small quantity of syrupy straw-colored fluid escaped. The interior of the growth was found to consist of a pulpy mass. The cavity was thoroughly cleansed, the other kidney examined and found normal and the wound closed; until the seventh day the case did well. On the seventh day the temperature rose to 101.5° F., and two small abscesses were found at the insertions of the sutures. Other

parts of the wound had healed nicely. She left the hospital later in a promising condition. Weight of tumor, fifteen pounds; length, 6½ inches; depth, 5½ inches; thickness, 4¾ inches; oval and lobulated at the upper and back, and the lower and anterior parts; surface smooth. The kidney may be seen doubled upon itself. The neoplasm sprung from the outer border, and the anterior surface of the kidney at a point about two and a half inches from its lower extremity, and is continuous with it along the whole concave border to the upper extremity. The capsule of the kidney formed the investing membrane of the tumor. The centre of the tumor comprises a cavity about the size of the fist, filled with pulpy matter. The microscopic appearances of the tumor are a mass of very small spherical embryonic cells—encephaloid sarcoma. The kidney was normal except the portion contiguous to the growth, which shows infiltration with embryonic elements.

Dr. A. W. Johnson, of Danville, Ky., discussed the feasibility of accurate diagnosis in abdominal tumors. He reported one case which Keith had been watching for nine years as a case of fibroid tumor, and on operating before a large crowd found he had a cyst of the broad ligament. The vast majority of sarcomas in children he thought to be hopeless, and disaster is certain to follow. *Med. Record*, July 28, 1888.

Idiopathic Suppuration of the Spinal Dura Mater.

Dr. Robert Maguire, Physician to Out-Patients and Joint Lecturer on Pathology, St. Mary's Hospital, London, in a communication to the *Lancet*, July 7, 1888, says that the existence of an idiopathic inflammation of the spinal dura mater has been very generally doubted. In the majority of cases the inflammation is produced by extension of disease from neighboring parts. Caries of the vertebræ, extension of a bedsore, and rupture of an abscess into the spinal canal are the most usual causes. The question of deciding whether the suppuration is idiopathic or not is complicated by the fact that the pus, when formed inside the canal, may make its exit amongst the muscles of the back or beneath the thoracic pleura, as in a case recorded by Mueller, and another by Dr. Spencer.[1] The external abscess may then be considered as the primary cause of the disease, and was so considered by Mueller. Dr. Spencer showed that in his case the arguments were strongly in favor of the meningitis being primary. In the present instance, he says, the disease, as will appear, was certainly primary in the spinal canal; and as no cause whatever could be discovered before or after death, he thinks must be considered as of idiopathic origin. The rarity of the affection renders it desirable that each individual case should be recorded. The notes from which the clinical account is reported were carefully taken by Mr. Roberts, house physician to St. Mary's Hospital.

C. W., seventeen years old, a groom, was admitted into St. Mary's Hospital Nov. 27, 1887. On Nov. 13 he had slept in damp sheets, and a few days afterwards complained of pain in the lumbar region, but kept at his work until Nov. 20, when the pain became much worse and almost prevented his moving. The patient was at this time treated at home for rheumatism with salicylate of soda and counter-irritation over the loins. The pain increased in severity, and on the

[1] *Lancet*, vol. i, 1879, 836.

23d the patient was quite unable to move his legs, and could move the arms only with great difficulty. At this time it was noted that there was actual paralysis, and that it was not merely pain which prevented movement. On Nov. 24 the arms were entirely paralyzed, the motions were passed involuntarily, and the urine was retained. There had been no shooting pains, rigidity, twitchings, or hyperæsthesia of the limbs, and no rigidity of the spine or retraction of the head. The patient had, however, complained of numbness in the feet and legs, and his medical attendant had noticed a blueness of the lower extremities. There had been no previous disease, and there were no other points of consequence in the history. It may be mentioned, however, that the patient had suffered no injury.

On admission into the hospital the patient was fairly well nourished, but looked exceedingly ill. The face was pale and somewhat cyanosed; the lips were blue. The legs and feet were flaccid, showed no wasting, and were of a bluish tint. There was total absence of voluntary movement and of all forms of sensation. The knee jerk was entirely absent on both sides, and no ankle clonus could be elicited. The plantar reflex was very feeble, if present at all, and the cremasteric reflex on each side was absent. The arms were flaccid, the hands and fingers bluish, and showed absolute loss of voluntary motion and sensation. There was no loss of sensation over the chest or abdomen. The respiratory movements, both abdominal and thoracic, were good. None of the trunk reflexes could be produced. There was no retraction of the head. The movements of the eyeballs were perfect. The pupils were moderately dilated, and contracted perfectly on exposure to light and on accommodation. There was no paralysis of the face, and the movements of the tongue and lips and of deglutition showed no abnormality. There was also no anæsthesia of the head and neck. The motions were passed involuntarily. The urine was retained. Some pain was complained of in the lower part of the abdomen, which was relieved by drawing off thirty-eight ounces of urine from the distended bladder. There was slight pain in the vertebral region on moving the patient, and severe pain was complained of when pressure was applied to any part of the vertebral column. There was no pain when the patient was completely at rest. No œdema or puffiness was observed in the skin of the back, nor were there any bedsores. The skin generally perspired freely. The patient was quite conscious, and answered questions intelligently. The temperature on admission was 100.6°; pulse 100, regular and soft. Heart normal. The respirations were shallow; a few moist *râles* were heard at both bases, but there was no dulness. The urine was normal.

During the night after admission, the patient's breathing became more labored, and the thoracic movements less observable. The skin of the trunk became anæsthetic. The patient was able to swallow nourishment, and was perfectly conscious. At 4 o'clock in the morning, both thoracic and abdominal respiratory movements were very slight, and the patient was becoming very cyanotic. During the night the temperature had risen, and at 6.15 A.M. was found to be 110° in both axillæ. At this time the pulse rate was 140 in the minute, small and weak; the respirations were 80 in the minute, and very labored. The skin was perspiring profusely, and the patient was still conscious. An ice-bag was applied to the nape of the neck, and ten grains of quinine were administered. The temperature was taken at frequent intervals up to noon, and varied

from 103° to 106°. During this time the patient perspired freely. He was quite conscious and rational, and swallowed nourishment. Nevertheless, he gradually became weaker, and died soon after noon.

A necropsy was made about twenty-four hours after death. On removing the skin and muscular layers from the spine, a large quantity of somewhat thick pus was found infiltrating the muscular planes in the lumbar and lower cervical regions, though much more marked in the former part. The pus was seen on both sides of the vertebral column, and in the lumbar region was most copious on the left side. On careful examination it seemed to proceed from near the arches of the vertebræ. There was no pus found in the muscles of the dorsal region. On opening the vertebral canal, pus was seen lying between the dura mater and the bone from the sacral termination of the canal to about the level of the second cervical vertebra. The pus was similar to that found outside the canal, somewhat thick and of no special odor. It was limited almost entirely to the posterior part of the dura mater, and was most copious in the lumbar region, and at the upper part of the dorsal and lower part of the cervical regions, corresponding to the cauda equina and the two enlargements of the cord. On opening the dura mater, the other membranes of the cord were seen to be congested, but presented no sign of inflammatory exudation. The cord itself showed no abnormal appearance whatever. A careful examination was made of the bones of the vertebral column, but no disease was found. Similarly, no abscess formation other than those described was discovered in the tissues adjacent to the vertebræ, or in any other part of the body. The brain and its membranes were perfectly healthy. The state of the other organs of the body need not be detailed, says Dr. Maguire, since, beyond the general effects of high temperature, nothing abnormal was seen.

There was suppuration, therefore, between the vertebræ and dura mater, limited to the posterior part of the membrane. The relations of the external abscess formations to the suppuration inside the spinal canal cannot, he says, in this case be considered doubtful. One cannot believe that two suppurations, one in the lumbar and the other in the cervical region, had formed primarily on each side of the vertebral column, and had both pierced the spinal canal. The rational explanation, he concludes, is that the spinal suppuration, being most intense in the neighborhood of the cervical lumbar enlargements, had there made its way, between the laminæ of the vertebræ, amongst the muscular planes.

The interest of the case is mainly pathological. Yet there may be noted amongst the clinical features the presence of excessive perspiration, together with an extremely high temperature and the blueness of the skin of the extremities. In Dr. Spencer's case there was also excessive perspiration, and the skin of the chest and abdomen showed a purplish mottling. The absence of cerebral inflammation and symptoms is probably explained by the much firmer attachment of the dura mater to the bone in the upper cervical region, approaching to the condition of the cervical dura mater. This anatomical formation would probably hinder the spread of inflammation.

Relative Frequency of Suppuration in the Mastoid Cells.

Dr. D. B. St. John Roosa, of New York, says that suppuration within the mastoid cells will rarely, if ever, occur if the cases are seen in time and properly

treated. Dr. Roosa has a right to speak with authority on this subject, as it is highly probable that he has seen more cases of ear diseases than any one else in this country. Unfortunately these cases do not apply for treatment till suppuration has occurred. Dr. Roosa found mastoid disease in a little more than one per cent. of the total number of his ear cases.

Dr. Leartus Conner, editor of the *American Lancet*, says that in a practice of seventeen years he has seen but six cases of mastoid disease, and one of these required an opening of the mastoid, four recovering with a Wilde's incision and one without operative interference; whereas Dr. Allport, of Minneapolis, has opened twenty-five mastoids, (finding pus in each case) in a total number of seven hundred and sixty-two cases. The latter observer thinks the climate of Minneapolis especially favorable to the production of the disease; chronic naso-pharyngeal catarrh being quite prevalent there. He has found that the disease is unknown in Florida.

Why one physician gets a run of a certain class of cases while others under similar circumstances have comparatively few, has not been explained, but this occurs so often that few physicians who have practiced any length of time, have not had it verified in their own experience.

It is a matter of judgment in each individual case of mastoid disease as to whether or not the cells shall be opened. A surgeon who has seen good results follow the operation is more inclined to resort to it than he who has never had recourse to it. Dr. Theobald, of Baltimore, has never found a case which he thought demanded that the mastoid cells be opened. It is highly probable that he has seen many cases in which other surgeons would have operated, but it is within the limits of possibility that he has not.

Making a Wilde's incision is a simple procedure when compared with the operation of making an opening in the outer wall of the mastoid process. Usually when there is pus in the cells, a sinus, varying in size, can be found opening on the surface of the bone.

In many cases of so-called mastoiditis the pus extends from the middle ear along the posterior wall of the auditory canal, and passing on to the mastoid process dissects up the periosteum on its anterior and outer surface. These cases are very misleading, a probe introduced into the sinus passing in front of the process, is well calculated to induce the operator to believe that he has entered the mastoid cavity.—*Weekly Med. Review*, July 28, 1888.

Acute Intestinal Obstruction; Early Operation; Successful Result.

W. J. Penny, F.R.C.S., Assistant-Surgeon to King's College Hospital, reports a case of this kind in the *Lancet*, July 7, 1888. The patient, a healthy, well-nourished boy of four, had an attack of diarrhœa on Nov. 2, 1887. While straining at stool, he complained of a sharp pain in the abdomen. After that he had frequent desires to defecate with straining, but passed no motion. In the course of a few hours vomiting supervened, and increased in frequency and intensity; the ejected material gradually assuming a stercoraceous character. When Mr. Penny saw him on Nov. 4, his countenance was pale, with dark rims under the eyes, and he had an anxious, pained expression. He was very rest-

less, tossing about the bed and complaining of pain in the abdomen. His tongue was furred and rather dry; pulse 136. The abdomen was flaccid, with a very slight appearance of fulness in the right iliac region. There was no particular abdominal tenderness except at this point. The appearance of fulness extended diagonally from the right flank towards the spine of the pubes.

Mr. Luffman and Dr. Newnham, of the General Hospital (who gave the anæsthetic), examined the rectum, and both found it clear; but both described a feeling of fulness in the right side of the pelvis. The abdominal symptoms, beyond the constipation and vomiting, were not well marked. An exploratory operation was decided on, the chief grounds for this being the sudden onset of the symptoms and the appearance of the patient, who had previously been in robust health. After this had been settled, the patient vomited again, the material being decidedly stercoraceous. A two-inch incision was made in the middle line, and the finger passed at once to the right iliac fossa. A tangled mass of intestine was met with, and something was felt to slip, giving the impression that the lesion was an intussusception, though the shape did not accord with this. To be quite clear of the nature of the trouble, Mr. Penny brought the mass to the surface, and then found that about ten inches of the lower part of the ileum had passed through a hole in its own mesentery and subsequently become twisted on itself. The strangulated part was of a darkish claret color, but retained its lustre. It was easily replaced and the abdominal wound sutured. The entire operation lasted less than ten minutes. In the evening the patient's pulse dropped to 100; the temperature, which before operation was subnormal, rose to 100° F.; the vomiting ceased.

On Nov. 5 the boy's expression was more natural; pulse 100; temperature 99°. He had passed a good night and had not vomited since the operation. The bowels had not been opened. There was no abdominal tension, pain, or marked tenderness. From this time he progressed rapidly towards recovery. The bowels were opened on the fourth day. On the seventh day the wound was dressed, and all stitches removed. There was an obscure history of a fall from a ladder a few days before the illness. The rent in the mesentery, however, did not give one the impression of being a recent lesion, as the edges were rounded. The patient was in such a weak condition that Mr. Penny completed the operation as quickly as possible.

In remarking upon the value of early operations, Mr. Penny says that about a fortnight afterwards he had occasion to make a post-mortem examination on a case of intestinal obstruction. The patient had been treated for a fortnight by medicines and applications to the abdomen, evidence of which existed in the blistered condition of the skin of that region. She was admitted to the hospital under the care of Dr. Markham Skerritt only a few hours before she died. In this case the abdomen was also flaccid. The lower part of the jejunum and almost the whole of the ileum had become strangulated under a thin fibrous band passing from the lower part of the jejunum to the ileum, two inches above the ileo-cæcal valve. Evidence of old pelvic cellulitis existed; the left ovary was adherent to the uterus, suppurating and discharging pus through a sinus which existed between it and the rectum. The undistended condition of the abdomen in this case was probably, he says, due to the lesion involving the intes-

tinal tract at such a high level. The duodenum and upper part of the jejunum were rather distended, and the rest of the intestines collapsed. Before opening the abdominal cavity, he passed his finger through a small median incision and came at once on the band. This case, he says, could easily have been remedied by operation, and for lack of it the patient died. Mr. Penny does not think it is sufficiently appreciated that an exploratory operation through a small incision, with antiseptic precautions, is often less hazardous than delay. In many of these cases delay means death; while the risk of an exploratory incision is infinitesimal. In the earlier stages, before peritoneal effusion and intestinal distension have occurred, operative measures are comparatively simple; the finger can be passed freely round the abdominal cavity without embarrassment from either the mechanical impediment caused by the distension or the stickiness of the intestines and peritoneum, and the operation can be completed in a few minutes—a very important point. When these troublesome conditions are present, the operation is difficult; and enterotomy has frequently to be resorted to as a palliative measure, instead of the more satisfactory plan of removing the primary cause of the trouble.

Case of Nephrectomy.

Dr. R. B. Nall, of Memphis, Tenn., reports a case of nephrectomy in the *Memphis Medical Monthly*, July 18, 1888. The patient was a German, twenty-eight years old. When twelve years old he received a severe contused wound in the left ileo-costal space, just over the kidney, with a hard base-ball, thrown by a stout, vigorous man. He was so shocked by the blow that a physician was summoned, and remained with him several hours. For a week after the injury his urine was heavily charged with blood. This condition subsequently gradually decreased until his urine appeared normal, both as regards quality and quantity. He stated, however, that he was frequently reminded of the injury to the kidney, for when taking active exerise with other boys at games or gymnastics, radiating pains from the left kidney region were severe, and for years he was in the habit of going to his parents and having such domestic remedies applied as were convenient, consisting of liniments, mild counter-irritants, etc.

These pains gradually increased in severity as pus formation went on, until he came under Dr. Nall sixteen years after the original injury. He was then pale and weak, and was having rigors and night sweats. He had a severe and persistent cystitis; his urine was murky and foul smelling, and when left in a vessel for awhile consisted of about one-third of pus in volume. The ratio of pus and urine did not exist regularly, but only appeared after each acute exacerbation of kidney pains, when the organ would discharge the superfluity of pus into the bladder, which from its irritating qualities would produce and protract the vesical trouble.

He declared that these symptoms had gradually increased in severity until he had arrived at the last point of endurance, and was now willing to be subjected to any operation which would give him the least chance of recovery.

When divested of his clothes, and the surface anatomy of the right kidney region compared with that of the left, a considerable bulging could be seen in the left ileo-costal space. Anterially the contour of the tumor could be well defined when the patient was under ether. It occupied the lumbar portion of the

left hypochondriac region and extended down below the middle of the lumbar region. Dr. Nall diagnosticated the case to be suppurative pyelitis, and advised the removal of the diseased kidney by an operation. He first tried to improve his health by the administration of ferruginous and strychnia preparations combined, but all to no affect; and Dr. Nall operated on the third day of April, 1888; ether was the anæsthetic used. An ordinary aspirator needle was thrust through the lumbar muscle into the suppurating kidney, and a large quantity of pus withdrawn.

Dr. Nall then made an incision from the last rib to near the crest of the ilium, nearly or quite four inches in length. The knife was implanted over the outer edge of the erector spinæ muscle. Dividing the skin, fascia and fat, the edge of the quadratus lumborum muscle was found, and was carefully retracted. The deep lumbar aponuerosis having now been reached, was cut, when the right index finger pressed into the retro-peritoneal space in the kidney. All bleeding vessels were tied as the operation progressed. The cortical substance of the kidney was now divided through its entire convexity, when an enormous quantity of pus was evacuated. Thrusting his finger into the pelvis of the organ, Dr. Nall says he was greatly disappointed in not finding a stone. After a careful search, however, none was found. There was a complete destruction of all the anatomical relations of the parts by the pus, which had dilated the kidney to a mere fragile pus bag. It was his first intention to shell out the organ from its adhesions, ligate the vessels at the hilus, and remove it *en masse*, but this part of the kidney seemed to have degenerated into a hard fibrous knot, and as there was no hemorrhage, he attempted to enucleate and remove as best he could. The fragile cortical substance, covering, etc., were attached by old inflammatory adhesions to spleen, pancreas, stomach and descending colon. With a good deal of care and patience, with the finger and occasionally the knife, he succeeded in removing, by piece-meal, the greater portion of the thin sac, except a part about as wide as two fingers, which was so firmly adherent to the descending colon that he feared to use finger or knife. At Dr. Taylor's suggestion he stitched the lower portion of the wound. In a week or two nearly all the portion of kidney left had disintegrated, and was washed out with detergent solutions of bichloride, boracic acid, etc. A large, well-perforated drainage tube was placed at the bottom of the wound, and each end allowed to protrude from the extremities of the incision. The edges of the wound were brought together by deep silk sutures, except the part that held the adherent portion of the kidney. Antiseptic lint was placed over the wound and a bandage around it; this constituted the dressing.

There was scarcely any shock; all the unpleasant symptoms described in the preceding lines disappeared at once. His temperature never rose above 101° F. Three or four weeks after the operation he was pale and weak, but showed evidences of improvement.

The wound at the time of the report was entirely healed, and appeared as a smooth linear cicatrix about three inches in length. The patient is said to be (three months after the operation) well, and has resumed his occupation as a cooper.

Successful Case of Total Extirpation of the Larynx.

A case in which the whole of the larynx was extirpated for epithelioma was communicated to the meeting of the Victoria Branch of the British Medical

Association, on April 25, 1888. The patient was a man, 62 years old, a native of Germany, residing at St. Kilda, Victoria, who began to lose his voice in the early part of 1887, when Dr. Cox, of Melbourne, diagnosticated a smooth growth below the left vocal cord, but the patient refused treatment. His voice was regained for about four months, but he again became hoarse, and in September he began to suffer from cough, attacks of spasm, and inability to lie down. Laryngoscopic examination on October 1 showed a small ulcer below the left vocal cord, and Dr. W. Gardner, of Adelaide, who happened to be in Melbourne, concurred with Dr. Cox in making the diagnosis of cancer. Dr. Cox then removed with the laryngeal forceps a small portion of the growth, which was examined by Professor Allen, who pronounced it to be epithelioma. On the following day Dr. Gardner, assisted by Dr. Cox and Yorke, removed the whole of the larynx. Next morning the patient almost died of suffocation from blocking of the tracheotomy tube; but Dr. Yorke sucked the tube clear, and restored the patient by performing artificial respiration. After that his progress was uninterrupted. Jelly was taken by the mouth on October 10; on the next day he was able to get up, and on Christmas day he was able to go out in the city unattended. The patient attended the meeting of the Branch in excellent health; there were no signs of recurrence of the disease, and he could speak in a whisper intelligible to those around. An artificial larynx of silver was made for him, but he preferred not to use it. The report puplished in the *Australian Medical Journal*, May, 1888, contains an addendum by Dr. Gardner, giving his reasons for preferring total extirpation as a rule. These are (1) diminished probability of recurrence *in situ*; (2) diminished risk of blood and pus passing down the wound into the trachea, this being prevented by the immediate insertion of a rectangular tube into the trachea; (3) greater facility in administering the anæsthetic during the later stage; (4) scepticism as to the results after partial excision turning out eventually to be so much better as is now said; (5) diminished risk of perichondritis. In this particular case the disease was so nearly in the middle line that removal of half the larynx was contra-indicated. Examination after removal showed that all the cartilages of the larynx were so completely ossified that to obtain a view of the interior it was necessary to split the organ down both back and front. The growth infiltrated the soft tissues immediately below the left vocal cord, which was itself ulcerated at its posterior part. The growth extended downwards to the lower border of the cricoid cartilage, and was broken down in the centre, leaving a rounded ulcer with hard irregular edges. It may be added that the time occupied by the operation from the commencement of the administration of chloroform was fifty-five minutes, and that the highest temperature after the operation was 100.4° F.—*British Medical Journal*, July 21, 1888.

Successful Nephroraphy for Floating Kidney.

C. Stonham, F.R.C.S., Assistant Surgeon to the Westminster Hospital, reports the following case in the *Lancet*, July 21, 1888: "Martha D——, aged thirty-four, a cook, came under my care in October, 1886. She was a nervous, hysterical woman, and had suffered for two years and a half from 'cramp' in the abdomen, and could feel a lump which moved about, and caused her great pain on movement and in doing her work. She was a married woman, but had lived apart from her

husband for some years. She had had one miscarriage, and states that she never quite recovered her former strength after this. Fifteen months later she was confined, the labor not being attended with any difficulty. She did not admit having worn tight stays. On her admission into the hospital it was found that the right kidney was freely moveable, and caused the patient so much pain on movement that she preferred remaining in bed, and had been obliged to give up her situation temporarily. The woman was well nourished, although not fat. Nephroraphy was proposed to her, and the nature and object of the operation being explained, she at once consented.

"On October 2, 1888, the patient being under the influence of ether, an incision was made parallel with the last rib and a finger's breadth below it; the incision was about four inches long, with its centre opposite the middle of the iliac crest. After opening the fascia transversalis an assistant pushed the kidney up into the wound. It was found to be normal in size, and surrounded by a small quantity of fat. Silk sutures were then passed through the deeper structures (transversalis muscle and fascia, and quadratus lumborum), and then through the capsule of the kidney and peri-renal fat; the suture was then tied. Two such sutures were passed through the upper lip of the wound and upper end of the kidney, and two through the lower lip and lower part of the kidney. Then a thicker silk suture was passed through all the structure in the wound at the posterior angle; then through the capsule of the kidney and peri-renal fat, and out through the other side of the wound. This was not tied until the wound had been closed with silk sutures, after having been cleansed with corrosive sublimate solution (1 to 2000). A drainage tube was put in the posterior angle, and the wound dressed with iodoform wood-wool.

"The dressings were changed on the first, third, and fifth days after the operation, and on the latter occasion the drainage tube was shortened to one inch and a half. On the twelfth day the dressings were again changed, and all the sutures uniting the wound were taken away, as was also the deep one passing through the kidney capsule. The drainage tube was removed. Five days later the wound had perfectly healed. The patient had not had a bad symptom from first to last, and there had not been any pain unless she had turned on the wounded side during sleep. I considered it advisable to keep her in bed for some time longer, in order that there might be firm adhesions between the kidney and the parietes. She was allowed to get up for the first time on November 7. The next day she complained of anæsthesia affecting the right leg, and on the right side below the incision; above this there was paræsthesia, and also anæsthesia along the course of the right intercosto-humeral nerve. This was put down to hysteria and no treatment was adopted. In a fortnight she quite recovered.

"I saw the patient in January, 1887, and she told me that she had been very much better since the operation, and that there had not been any return of the old pains, and she had been able to do her work in comfort. She now complained of pain in the cicatrix, quite localized to one spot. On examination I found that there was a small abscess, which I opened, and discovered that it had been caused by one of the deeper sutures, which I removed, and the abscess rapidly healed. In the following June, I again saw this patient. She had perfectly recovered from her old pains and cramp, and was just about to leave for a situation in Australia."

In his remarks on this case, Mr. Stonham says: "This case appears to me interesting as showing the great good that may be done by nephroraphy in suitable cases. In this case the pain caused by the floating kidney was such that the patient was totally unfit for work. The operation appears to me to be devoid of any great danger if antiseptics are used and due care be taken not to wound the peritoneum. It must, however, be borne in mind that in some cases of floating kidney the peritoneum forms a complete mesonephron as in the original fœtal condition."

On Massage.

In an address on massage, delivered at the annual meeting of the West Somerset Branch, Dr. Abraham Colles said that Mr. W. J. Penny's paper on "Bone-setting" had suggested to him the desirability of dealing in a similar spirit with a cognate subject, namely, massage, a system of treatment under which a fresh body of charlatans seemed inclined to take refuge. He had had several opportunities of observing the results in patients of his own and others who had undergone the treatment. Judging from advertisements in the medical journals, there were "experienced *masseurs*" or "*masseuses*" who were willing to undertake the care of anything or anybody. So far as he could learn, the greater number of such advertisers had no qualification whatever entitling them to the high-sounding titles they assumed. They were simply persons who would rub or knead you—for a consideration—but who knew nothing about massage proper. It has been truly said: "There is as much difference between Metzger's massage and the so-called English massage as there is between champagne and gooseberry. The difficulty is that the majority of people do not know one from the other, and most patients are perfectly satisfied as long as the rubber gives them a full hour, works hard and gets hot and a little 'dewy.' The isolation of individual muscles or groups of muscles is at a discount, whilst motor points are almost unknown quantities." It need hardly be said that the effects of this spurious massage are often disappointing, and thus a system capable of producing great results when properly used was in danger of falling into undeserved disrepute. Quack massage flourished in consequence of the gullibility of the public; rubbing and kneading were useful in fit cases, and (just as with the bone-setters) the successful cases made a noise, while the failures were discounted. The medical profession was not free from blame in this matter, much of the success of these quacks being due to the apathy of orthodox practitioners on the subject.

It was often said that massage was no new thing, but was practiced by the Greeks and Romans and other nations of antiquity. The practice of the ancients, however, resembled that of modern "rubbers," but was not massage; it was almost identical with the shampooing still used in the East after the bath. Massage proper embraced a variety of manipulations suitable to different conditions. The simplest form (*effleurage*) consisting in a stroking movement made with the hand in a centripetal direction. If an entire limb was to be influenced it was grasped firmly at the point at which the movement was to begin, and the hand then passed firmly towards the body as far as might be required, the other hand beginning a movement just as the first ended, and so each hand taking it up alternately. If it was to be applied to a muscle or group of muscles it was im-

portant to follow as closely as possible the direction of muscle-fibres. For deep-seated tissues the knuckles might be substituted for the palm of the hand. The amount of pressure exercised and the rapidity of the movement must depend on individual circumstances. This form of massage was often useful in reducing passive enlargements, either solid or fluid. The result was obviously due to an increase of the circulation, both venous and lymphatic. Another form of massage was *pétrissage*, which consisted in picking up a portion of muscle, or other tissue, with both hands, and subjecting it to firm pressure, rolling it at the same time between the fingers and the underlying tissues. The movement was made from below upwards, and the parts were squeezed in much the same way as one would squeeze out the contents of a sausage. It was of importance to proceed uniformly, and not to jump from spot to spot, and it was essential to bear in mind the arrangement of the groups of surface muscles and to keep well in the interstices. In a case of infantile paralysis affecting the lower extremities only, he had seen *effleurage* and *pétrissage* used in combination, with the result that first warmth, then responsiveness to galvanism, and finally voluntary movement were restored. He had more than once seen benefit produced by massage in cases of chronic constipation, *pétrissage* being applied to the abdominal muscles, and a combination of that movement and *effleurage* along the ascending transverse and descending colon. The action here was probably three-fold: (1) increase of intestinal secretion, (2) stimulation of peristaltic action, (3) mechanical movement of accumulated fæces. He had also seen rheumatism of individual muscles yield to massage when medicines, liniments, medicinal baths and galvanism had done so little good that almost total loss of movement had resulted, with very considerable suffering. In one case careful *pétrissage* for a few weeks caused almost total disappearance of the symptoms.

In certain surgical cases a combination of *effleurage* with "friction" was often useful. The term "friction" was not very appropriate, as would be seen from the following description of the movement referred to: "The finger tips of one hand held at right angles to the axis of the limb rub across and across in narrow ellipses, while the fingers of the other hand stroke parallel to the axis of the limb." Massage should not be used when acute inflammation was present, except in cases of sprain. If massage *à friction* were begun immediately after the accident discoloration and swelling rapidly disappeared. This manipulation continued for a quarter of an hour, and repeated at intervals of a few hours, would in most cases do away with evaporating lotions, etc., and with the necessity of confinement to bed for some weeks. In the cases most liable to pass into the hands of bone-setters, namely, those in which joints have become stiffened as the result of chronic inflammation or severe sprains, massage was often extremely serviceable, and obviated all need for the violent measures so freely used by bone-setters. He had had no personal experience of the effect of massage on the union of fractures, but it was said by competent authorities to be eminently satisfactory, hastening repair, and shortened the period of treatment to a wonderful extent.

There were many other forms and applications of massage, which he knew only by report, for example, digital pressure on nerve points for the relief of

pain and *tapotement*. The latter might be described as a regulated system of percussion; it was administered by the front of the finger-tips, by the back of the hand, by the edge of the hand, or with the palm, so as to contain a cushion of air. In addition to these, special instruments of percussion were at times employed. A case was cited in which a primitive form of this method was resorted to by the patient himself about a century ago; by this means he was said to have cured himself of rheumatism, a tendency to gout, *tic douloureux*, cramp and other diseases, including a cataract. It appeared to him (Dr. Colles) that every medical practitioner was now bound to make himself as well acquainted with the scientific use of massage as with other branches of practice. He thought there was a great field here for experiment and research. As yet not much had been done in this country to reclaim massage from the hands of ignorant pretenders. The Weir-Mitchell system, which was somewhat allied to it, though different in scope and in application, was now pretty well established in London, and undoubtedly produced good results at times. It was, however, inconvenient and expensive, and not by any means uniformly successful. This method was not massage, though often confused with it, and it could never take the place which massage ought to hold.

Massage could never come into general use so long as its exercise depended solely on the medical man. He must have the assistance of skilled manipulators, who would faithfully carry out his directions in his absence, just as a good nurse did in her own province. Some effort was now being made in London to supply this want, but there was no reason why the Taunton and Somerset Hospital should not now furnish practitioners in West Somerset with what was required in that line. It was said that two years of training were needed to make a nurse competent in massage; if it was remembered that a considerable knowledge of anatomy was indispensable, this estimate would not seem exaggerated. Massage was, of course, a panacea, but the list of maladies in which competent authorities had found it useful numbered forty or fifty. The physiological effects of massage were not yet fully worked out, but it appeared that *effleurage* stimulated the skin muscles, produced dilatation of the superficial vessels, and insensible perspiration, excited the skin reflexes, and, acting through the skin nerves, increased the rapidity of the heart's action, as well as of the circulation. *Pétrissage* forced the lymph out of the muscles, increased the velocity of the blood current in the part, temporarily decreased the size of a limb, and increased its muscular power. Unlike *effleurage*, it reduced instead of increasing the pulse rate, more especially when it was applied to the abdomen. The local effects of *massage à friction* were much the same as those of *pétrissage*, while *tapotement* was most effectual in exciting muscular contraction. The electrical excitability of muscle was also increased under massage, as was seen in the restoration of that power in cases of paralysis, in which it had been previously dormant. Medical gymnastics and calisthenics might often be advantageously combined with massage.—*British Medical Journal*, July 28, 1888.

Gastrostomy, by Aid of Cocaine Anæsthesia.

Dr. Roswell Park, Professor of Surgery, Medical Department, University of Buffalo, in a communication in the *Medical Press*, August, 1888, reports the

following case: "Mrs. McCann, 47 years of age, was sent to me during the summer of 1886 by Dr. H. M. Eddy, of Geneva, N. Y. Her family history good. For eighteen years she had noticed occasional dysphagia, sometimes only for a few moments, sometimes for a few days, and then, perhaps, not for several weeks. This was probably a spasmodic condition, but about January 1, 1886, became positive and constant. It was always worse at the time of her monthly periods, and was then accompanied by more pain; until recently she had a good deal of pain referred to the base of the neck. Since March, 1886, she has swallowed nothing solid. At one time she expectorated some pus, after which, for a few days, swallowing was easier. In May, on account of inability to take nourishment, she became extremely reduced and weak. Since then Dr. Eddy had been introducing a very small catheter into the œsophagus three times a day, and through this injecting fluid food.

"June 14, 1886, I first saw her; she had then a very cachectic look, said she had lost thirty pounds, and was exhausted from her journey. At this time she suffers but little pain, much less than formerly. She still menstruates regularly; bowels move every two or three days. On exploring with bulbous bougies I find stenosis of the œsophagus, about six inches from the upper incisor teeth, and consequently about one and one-half inches above the level of the clavicle. This permits, with difficulty, the admission of an elastic catheter of size 17 French. This has usually been introduced three times a day, but once or twice lately she says that Dr. Eddy has allowed it to remain *in situ* for a day or two. She cannot even swallow her saliva, which she accordingly has to keep spitting out. The entrance to the stricture seems a little to the left of the middle line; externally nothing can be felt; no enlarged glands, nor indication of other disease can be detected. Concluding that the trouble was of a malignant nature, and realizing that the patient was too weak to permit at that time any extensive operation for incision of the cancer, I could only recommend gastrostomy.

"June 16, the patient having been prepared by baths and enemata, was fed at 7.30 A.M., the tube being left *in situ* until after the operation. This was made in presence of the hospital staff, of her physician, Dr. Eddy, and of a large number of professional gentlemen of Buffalo. In the line of the contemplated incision I injected, subcutaneously, twenty-five minims of a four per cent. solution of cocaine, in which one-fourth of a grain of morphia had been dissolved. I then mildly inflated the stomach by separately injecting through the œsophageal tube the constituents of a Sedlitz powder, and thus brought the stomach well to the front for operation. Drs. Mann and Phelps assisting me, I made an incision three inches long through the skin, beginning just outside the navel, parallel to the free margin of the ribs, and extending three inches to the left. Working through this incision I penetrated the outer half of the rectus muscle, whose fibers were cut, and then those of the oblique, by separating them without incision—desiring to secure from them a certain sphincter action for the opening. The epigastric artery I tied and cut, it being in the way. Allowing all oozing to subside I then opened the peritoneum to the extent of one and one-half inches. The colon first presented; pushing this aside the left lobe of the liver appeared. With some little difficulty the colon was depressed by sponges in holders so as to permit seizure of the stomach. This was then with a tenaculum seized at its

most available spot and drawn up to the external wound. The fold which thus presented I transfixed with a long hare-lip pin, and thus held it in the wound. Four silk sutures were then introduced, passed through the skin, peritoneum, outer coat of stomach, and then back through the peritoneum and skin. These were tied on the outside of the skin at a little distance from the margin of the wound. The stomach being thus fastened in place, I applied a catgut suture around the margin of the wound, uniting skin, peritoneum and serous coat of the viscus. The portion of stomach wall exposed in the wound was nearly one inch in length by half an inch in breadth.

"The operation consumed just fifty-five minutes. Cocaine was injected once after I began; altogether one and a half grains were used hypodermically, and a little of the four per cent. solution was applied to the surface of the wound. Though the patient was somewhat frightened she afterwards acknowledged that she felt but very little pain. No sensibility was evinced when the finger was introduced into the peritoneal cavity. After the stomach had been brought up and fastened to the front, dressings of iodoform gauze were applied, and over these a compress with binders. The hare-lip pin was left *in situ*, its ends protected by lead plates. Directions were given to feed the patient by enema, and administer morphine if necessary.

"Five days later, the patient's temperature having only once been as high as ninety-nine and a half, I applied a little cocaine locally and punctured the stomach wall with a galvano-cautery, without pain to her. Not until the following day was the tube introduced through this opening, and four ounces of egg and milk administered through it; that day she was allowed to sit up.

"For several days subsequently I was out of town, and did not see her again until July 3. She was then walking about, feeling much stronger and better, digesting well that which was introduced into the stomach, and desirous now of having the radical operation of which we had spoken previously. On laryngoscopic examination I now found that which I had not found previously, namely, most evident occular proof of the malignancy of her trouble and its rapid advance, since now an epitheliomatous mass could be plainly seen, involving the posterior laryngeal wall, encroaching on the glottis, and already causing slight dyspnœa. On this account I declined further operative procedure and sent the patient home. A letter subsequently received from Dr. Eddy informed me that she died on the 20th of August; that her case presented the usual symptoms of rapid spread of cancerous disease—pain, emaciation, *et cetera*. Also that she died of dyspnœa and exhaustion, for which latter he proposed tracheotomy, which she declined.

"He made an autopsy and found cancer of the œsophagus, involving five or six inches of its length, completely closing it for four inches, spreading to the trachea, to the larynx, the thyroid gland and adjoining tissues."

In conclusion, Dr. Park says: "This operation is believed to have been the first laparotomy undertaken solely with aid of cocaine as a local anæsthetic; certainly the first operation of any such magnitude. Since then the reporter has frequently used it for herniotomies and similar operations, but never with more conspicuous advantage."

Case of Purulent Pleuritis Cured by Incision and Drainage.

Dr. W. B. Rogers, Professor of Principles and Practice of Surgery, and Clinical Surgery, in Memphis Hospital Medical College, in a communication to the *Memphis Medical Monthly*, July, 1888, says that some months ago he reported seven cases of purulent pleuritis, giving detailed accounts of each case, and the results; and he now desires to add another case which has resulted practically in a cure.

The patient was a boy nine years of age, and delicate of build. His mother still living and in good health; the father died with diarrhœa; the grand-parents are living, and healthy. With the exception of one maternal aunt, who died of phthisis, there is no trace of that affection in the family.

On February 14, 1888, the patient was taken with a chill, followed by fever. Prof. B. G. Henning was summoned, and made out the case one of pleuro-pneumonia, involving the entire right lung and pleura. The temperature ran very high; expectoration was scanty, and the condition desperately bad. For three days all hope of recovery was given up. He improved to a certain extent, but remained very weak.

On March 18, the temperature rose, the cough became incessant; no absorption of effusion could be detected. The hypodermic syringe showed that the fluid was purulent. The following day Dr. Rogers was asked to assist in aspirating. Four quarts of pus were drawn off. He breathed better, and great relief followed. Four days later, the chest having rapidly refilled, temperature 103°, pulse 140, cough incessant, the seventh intercostal space in the axillary line was opened, a drainage tube was inserted, and the fluid all allowed to escape, after which the cavity was irrigated with 1-3000 bichloride solution; convalescence was rapid, and in six weeks the wound had entirely healed.

On June 6, careful examination of the right chest was made, inspection showed much sinking; mensuration at the nipple was one-half inch smaller than on the opposite side; percussion developed barely perceptible increase of dulness along the normal hepatico-pulmonary line; ausculation detected no rales; the vesicular murmur was distinct as low down as the liver.

In conclusion Dr. Rogers says: "Thus of seven cases which have been subjected to drainage and irrigation in my hands, three have been cured; one death only, and that from double pleuritis. The remaining three are enjoying good health. And here I would mention that in December last I excised a portion of rib, and removed a piece of drainage tube measuring five inches in length, and one-quarter inch in calibre, which had slipped into the pleural abscess, and had been there five months, in one of the cases reported. The patient gained strength rapidly after this operation, but the fistula still remains.

"Of the cases living and not cured, two I am confident can be relieved by the excision of portions of the ribs, allowing the bony chest wall to collapse, and thus close the suppurating cavities.

"My experience proves that counter-openings are not essential in all cases; secondly, that trephining or excision of portions of the rib is not always necessary. Thorough drainage, that broadest plank in the antiseptic platform, is essential, and should be sought at once on the discovery of pus in the pleural cavity."

Painless Treatment of Rectal Diseases.

In a paper read before the Ohio State Medical Society, DR. H. M. BROWN, of Hillsboro, Ohio, spoke of the treatment of hemorrhoids, fissures and ulcers. It is his practice with external hemorrhoids to take an eight per cent. solution of cocaine, fill a hypodermic syringe with it and inject it directly into the tumor. It swells up like a bladder, and is completely anæsthetized almost immediately. He then takes a pair of scissors, curved upon the flat, and cuts the pile off close up to the anus to which it is attached. Some absorbent cotton is saturated with Monsel's solution and applied to control hemorrhage. Except in rare instances, the patient is never troubled with the pile again. Occasionally there may remain an irritable crack at the site of the operation, which may be easily cured thus: Introduce a bivalve speculum, dilate it to the utmost, brush the parts with a twenty per cent. solution of cocaine, and then apply chromic acid. Great care should be exercised in the application or the treatment will not be painless.

Regular fissures of the rectum he treats with cocaine and dilatation also. A solution of equal parts of carbolic acid and sweet oil is carefully applied to the bottom of the fissure, the speculum withdrawn, and a half ounce of sweet oil injected with a small, smooth syringe and retained. If the first application does not cure, this should be repeated at intervals of a week until the fissure is well.

Cases of irritable or hysterical rectum are so simple in their cure, he says, and yield so quickly, that it is a pleasure to have them under observation. Inject a few drops of a twenty per cent. solution of cocaine and wait about three minutes, then introduce the bivalve speculum and dilate completely. Repeat every other day, and the patient will be well in two weeks.

For regular pile sacs or internal hemorrhoids, he introduces an Aloe speculum, of medium size, in the direction of the tumor to be treated, waits until it runs full of blood; then, with the long-needled hypodermic syringe made for this purpose, injects deeply into the sac fifteen drops of a six per cent. solution of cocaine, made with fluid extract of hamamelis, instead of water. In a few minutes he injects near the site of the puncture already made five drops of equal parts of glycerine and carbolic acid. Always remember, he says, to treat hemorrhoids inside the rectum; should they protrude return them before beginning treatment.

In the successful treatment of rectal ulcers there are four cardinal points to be observed, viz.: (1) Prevention of constipation; (2) absolute cleanliness; (3) thorough exposure of the ulcer cavity, so that it can be plainly seen while treated; (4) the application of some remedy that will insure rapid and thorough granulation of the indolent sloughing surface. After each evacuation the patient is directed to wash out the rectum with a pint or more of warm water, injected with a large, curved, rectal syringe, then evacuated again immediately, thus freeing the rectum from any irritating substance for the time being. The night injection should be followed by one of an ounce of water containing about fifteen grains of boracic acid, five grains of sulphate of zinc, three grains of alum, to be retained.

To expose the ulcer well, the patient should be placed on the left side, with the knees well drawn up toward the chin. With a small, dull, uterine curette the ulcer should be gently scraped out thoroughly until the surfaces are some-

what freshened, then the cleaned cavity should be brushed with a twenty per cent. solution of cocaine, a cotton-wrapped probe dipped into a solution of equal parts of carbolic acid and oil of ergot, and quickly applied, until the surface changes to a fresh color. Then remove the speculum, inject a half ounce of sweet oil, and the treatment is finished for that time. It should be repeated at intervals of sixteen days, and cure will nearly always come from a few weeks to several months, according to the severity of the case.—*Memphis Medical Monthly*, July, 1888.

Nephrotomy.

MR. A. G. MILLER, Lecturer on Surgery in the School of Medicine, Edinburgh, reports three cases of nephrotomy in the *Edinburgh Medical Journal*, June, 1888, and concludes his paper with the following suggestions:

"1. If a suppurating kidney is aseptic, leave it alone if you can. The kidney may recover, or may shrivel up and become a mass of cicatricial tissue. That the latter result is possible has been frequently perceived on the post-mortem table.

"2. If incision is necessary in an aseptic case, the utmost antiseptic precautions should be employed till the wound is soundly healed; for septic infection may mean death, especially in the young.

"3. If the suppuration is septic, prefer nephrectomy to nephrotomy, provided the other kidney is sound. Incision may be employed advantageously as a preliminary to excision. Such a procedure, according to OTIS (*Boston Med. and Surg. Journal*, October, 1887), 'robs a subsequent nephrectomy of much of its danger' (the mortality of the latter varying, according to his tables, from 31.48 per cent. to 54.44 per cent.).

"MR. GODLEE also says that a contracted kidney is removed with less risk to life than a large one. 'Hence the great advantage of draining such a kidney, and allowing it to shrink before taking it away.'

"At the conference held in Paris in 1886 (*Revue de Chirurgie*, November, 1886), the general opinion seemed to be in favor of nephrectomy, preceded by nephrotomy, being the best treatment for suppuration connected with the kidney."

Rare Cause of Intestinal Obstruction.

Among the rarest causes of intestinal obstruction is the blocking of the canal by a mass of round worms. STEPP (*Centralblatt f. d. med. Wissenschaften*, 27, 1888) has recently recorded an instance in a boy, four years old, who died with symptoms of acute obstruction an hour and a half after medical aid was first summoned. *Post-mortem* examination showed that the intestine was completely obstructed by a twisted mass of some forty or fifty round worms, lodged just above the ileo-cæcal valve. The ileum contained some thirty-five more higher up, and there were a few in the stomach and œsophagus. The boy's mother gave him some "worm medicine" two days before he died, and a meal of smoked bacon and sauerkraut on the following evening. Dr. Stepp thinks that the worms, weakened by the medicine, were dislodged in numbers by the violent peristalsis set up by the injudicious meal of the following evening, and so rolled down in a tangled mass too large to pass the ileo-cæcal valve.—*British Med. Journal*, July 14, 1888.

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